365 Notebook

Service Guide

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About this Manual

Purpose

This service guide aims to furnish technical information to the service engineers and advanced users when upgrading, configuring, or repairing the Extensa 365 notebook.

Manual Structure

This service guide consists of four chapters and seven appendices as follows:

Chapter 1 System Introduction

This chapter gives the technical specifications for the notebook and its peripherals.

Chapter 2 BIOS Setup Information

This chapter includes the system BIOS information, focusing on the BIOS setup utility.

Chapter 3 Disassembly and Unit Replacement

This chapter tells how to disassemble the notebook and replace components.

Appendix A Model Number Definition

This appendix shows the different configuration options for the 365 series notebook computer.

Appendix B Compatibility Test Report Excerpt

This appendix contains the compatibility test report of the notebook.

Appendix C BIOS POST Checkpoint

This appendix lists the POST checkpoints of the notebook BIOS.

Appendix D Silk Screen

This appendix contains the silk screen of the notebook.

Appendix E Spare Parts List

This appendix lists the spare parts for the 365 series notebook computer with their part numbers and other information.

Appendix G Schematics

This appendix contains the schematic diagrams for the system board.

Appendix H Troubleshooting to Board Repairing

If you need help…….

Conventions

The following are the conventions used in this manual:

`Text entered by user` — Represents parameter settings and text input by the user.

```
Screen messages
```

Denotes actual messages that appear onscreen.

[ALT], [ENTER], [F8], etc. — Represent the actual keys that you have to press on the keyboard.

NOTE
Gives bits and pieces of additional information related to the current topic.

WARNING
Alerts you to any damage that might result from doing or not doing specific actions.

CAUTION
Gives precautionary measures to avoid possible hardware or software problems.

IMPORTANT
Reminds you to do specific actions relevant to the accomplishment of procedures.

TIP
Tells how to accomplish a procedure with minimum steps through little shortcuts.

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System Introduction

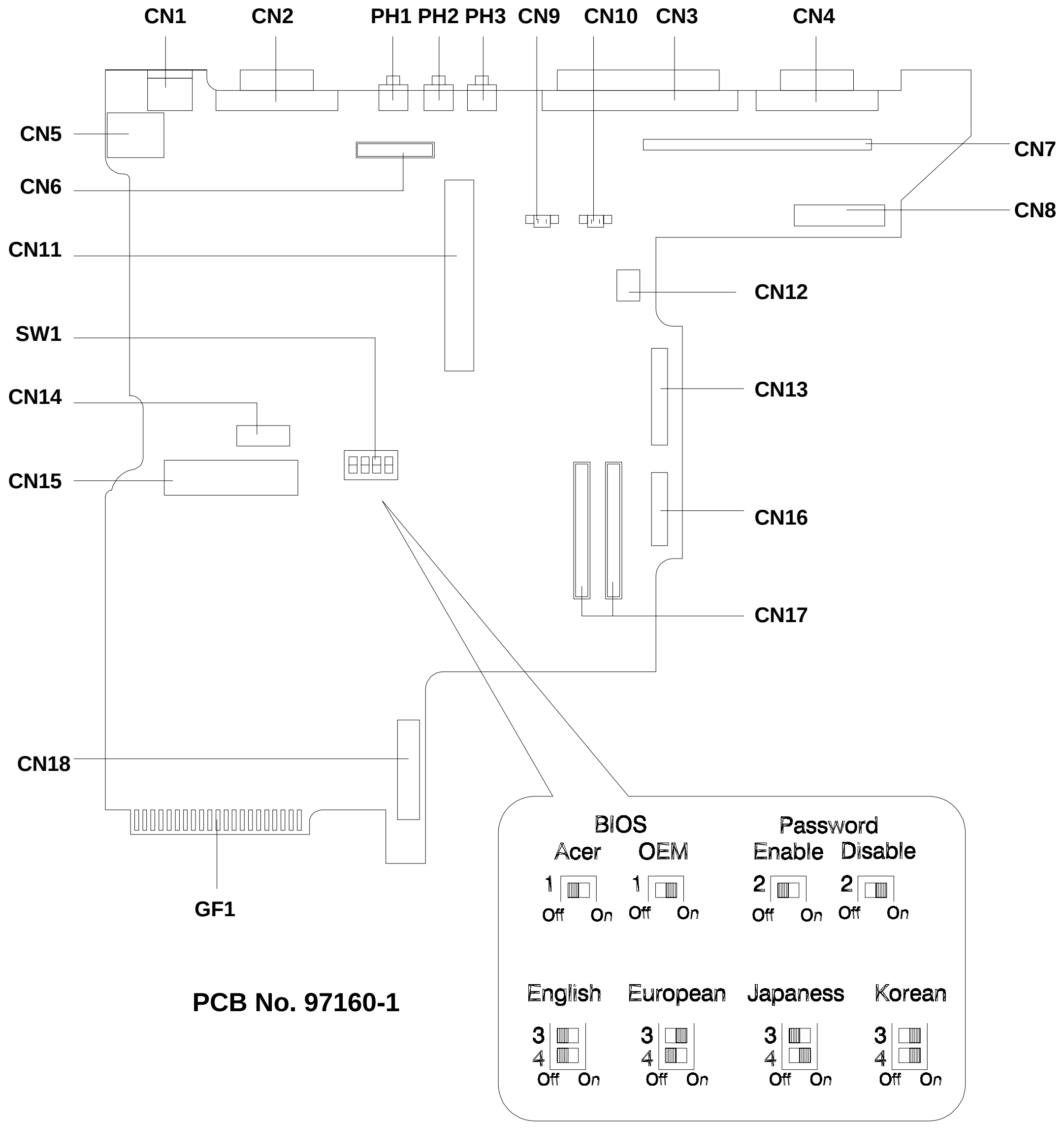
1.1 Overview

This computer combines high-performance, versatility, power management features and multimedia capabilities with unique style and ergonomic design. This computer was designed with the user in mind. Here are just a few of its many features:

- Performance
  - Intel Pentium® processor with MMX™ technology
  - 64-bit main memory and external (L2) cache memory
  - Large LCD display and PCI local bus video with graphics acceleration
  - Internal CD-ROM drive and external 3.5-inch floppy drive (CD-ROM drive model)
  - Internal 3.5-inch floppy drive (FDD model)
  - High-capacity, Enhanced-IDE hard disk
  - Nickel Metal-Hydride battery pack
  - Power management system with light green, standby and hibernation power saving modes
- Multimedia
  - 16-bit high-fidelity stereo audio with 3-D sound
  - Built-in dual speakers
  - Ultra-slim, high-speed CD-ROM drive
- Connectivity
  - High-speed fax/data modem port
  - USB (Universal Serial Bus) port
- Human-centric Design and Ergonomics
  - Lightweight and slim
  - Sleek, smooth and stylish design
  - Full-sized keyboard and wide palmrest
  - Ergonomically-centered touchpad pointing device
- Expansion
  - CardBus PC card (formerly PCMCIA) slots (two type II/I or one type III) with ZV (Zoomed Video) port support
  - User-upgradeable memory and hard disk

1.2 Jumpers and Connectors

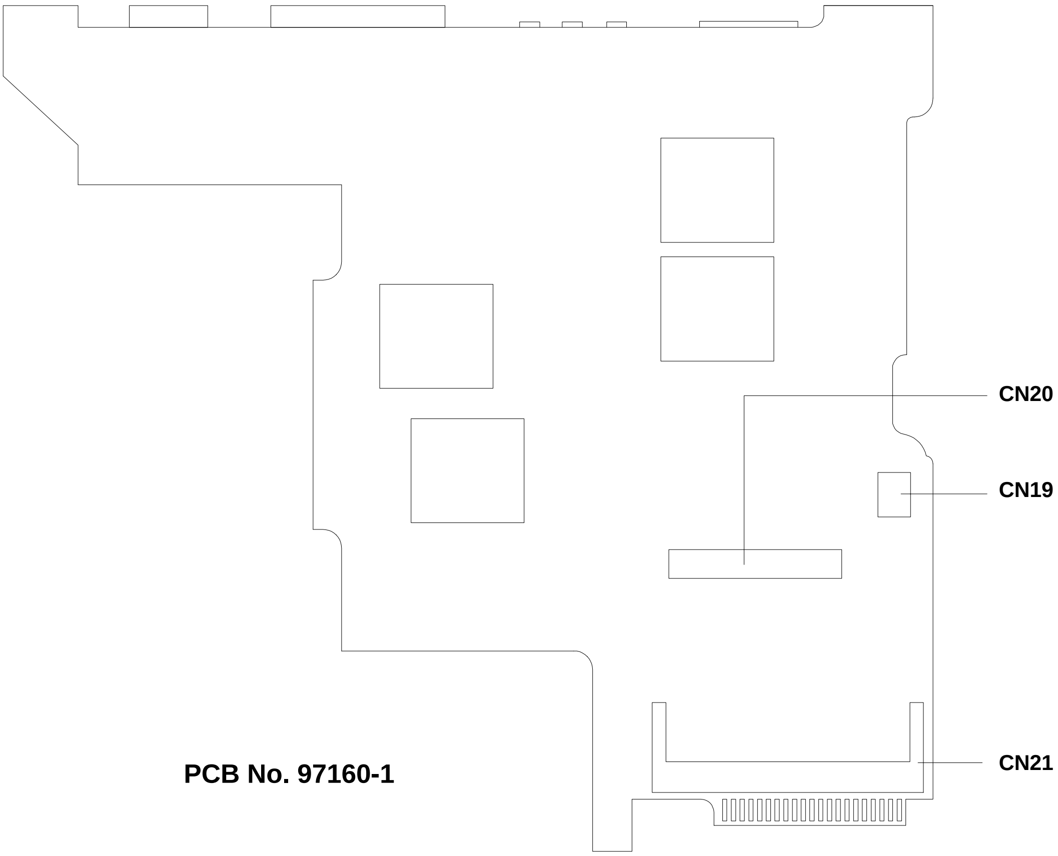
TOP VIEW



CN1	*USB port*	*CN9*	*Internal speaker connector (left)*	*CN17*	*CPU board connector*
CN2	*VGA port*	*CN10*	*Internal speaker connector (right)*	*CN18*	*Battery connector*
CN3	*Parallel port*	*CN11*	*PCMCIA socket connector*	*SW1*	*KB/password/logo setting switch*
CN4	*Serial port*	*CN12*	*Inverter connector*		
CN5	*RJ-11 phone jack*	*CN13*	*FDD/CD-ROM connector*	*GF1*	*Golden finger for debug card*
CN6	*LCD connector*	*CN14*	*Internal keyboard/touchpad connector*	*PH1*	*Microphone connector*
CN7	*DC-DC connector*	*CN15*	*HDD connector*	*PH2*	*Line-In connector*
CN8	*Charger connector*	*CN16*	*CD-ROM connector*	*PH3*	*Line-out connector*

Figure 1-1 Jumpers and Connectors (Top View)

BOTTOM VIEW



CN19 Modem connector
CN20 Modem connector
CN21 DIMM socket

Figure 1-2 Jumpers and Connectors (Bottom View)

The following tables list the switch settings for SW1.

Table 1-1 SW1 Switch Settings

	ON		OFF	
Switch 1 (Logo Screen)	OEM		Acer	
Switch 2 (Password)	Bypass		Check	
	English	**European**	**Japanese**	**Korean**
Switch 3 (KB Language)	Off	On	Off	On
Switch 4 (KB Language)	Off	Off	On	On

1.3 Hardware Configuration and Specification

1.3.1 Memory Address Map

Table 1-2 Memory Address Map

Address Range	Definition	Function
000000 - 09FFFF	640 KB memory	Base memory
0A0000 - 0BFFFF	128 KB video RAM	Reserved for graphics display buffer
0C0000 - 0CBFFF	Video BIOS	Video BIOS
0F0000 - 0FFFFF	64 KB system BIOS	System BIOS
100000 - top limited	Extended memory	SIMM memory
FE0000 - FFFFFF	256 KB system ROM	Duplicate of code assignment at 0E0000-0FFFFF

1.3.2 Interrupt Channel Map

Table 1-3 Interrupt Channel Map

Priority	Interrupt Number	Interrupt Source
1	SMI	Power management unit
2	NMI	Parity error detected, I/O channel error
3	IRQ 0	Interval timer, counter 0 output
4	IRQ 1	Keyboard
	IRQ 2	Interrupt from controller 2 (cascade)
5	IRQ 8	Real-time clock /
6	IRQ 9	Cascaded to INT 0AH (IRQ 2) / Audio / PCMCIA/Internal Modem
7	IRQ 10	Audio (option) / PCMCIA / Internal modem / Serial communication
8		port 2 / PCMCIA / USB
9	IRQ 11	Audio (option) / PCMCIA / Internal modem / Serial communication
10		port 1 / PCMCIA
11	IRQ 12	PS/2 mouse
12	IRQ 13	INT from coprocessor
13	IRQ 14	Hard disk controller / PCMCIA controller
14	IRQ 15	CD-ROM controller / PCMCIA controller
15	IRQ 3	Serial communication port 2 / Internal modem / Audio / PCMCIA
16	IRQ 4	Serial communication port 1 / Internal modem / Audio / PCMCIA
17	IRQ 5	Parallel port (option) / Audio / PCMCIA
18	IRQ 6	Diskette controller
19	IRQ 7	Parallel port (option) / Audio / Internal Modem

1.3.3 DMA Channel Map

Table 1-4 DMA Channel Map

Controller	Channel	Address	Function
1	0	0087	Audio (option) / Audio
1	1	0083	Audio (option) / ECP / Audio
1	2	0081	Diskette
1	3	0082	Audio (option) / ECP
2	4	Cascade	Cascade
2	5	008B	Not support
2	6	0089	Not support
2	7	008A	Audio (option)

1.3.4 I/O Address Map

Table 1-5 I/O Address Map

Address Range	Device
000 - 00F	DMA controller-1
020 - 021	Interrupt controller-1
040 - 043	Timer 1
048 - 04B	Timer 2
060 - 06E	Keyboard controller 8742 chip select
070 - 071	Real-time clock and NMI mask
080 - 08F	DMA page register
0A0 - 0A1	Interrupt controller-2
0C0 - 0DF	DMA controller-2
1F0 - 1F7	Hard disk select
220 - 22F	Audio (option) - default
230 - 23F	Audio (option)
240 - 24F	Audio (option)
250 - 25F	Audio (option)
278 - 27F	Parallel port 3
2E8 - 2EF	COM 4
2F8 - 2FF	COM 2
378, 37A	Parallel port 2
3BC - 3BE	Parallel port 1
3B4, 3B5, 3BA	Video subsystem
3C0 - 3C5	Video subsystem
3C6 - 3C9	Video DAC
3C0 - 3CF	Enhanced graphics display
3D0 - 3DF	Color graphics adapter
3E0 - 3E1	PCMCIA controller
3E8 - 3EF	COM3
3F0 - 3F7	Floppy disk controller
3F8 - 3FF	COM 1
CF8 - CFF	PCI configuration register

1.3.5 Processor

Table 1-6 Processor Specifications

Item	Specification
CPU type	P55C-166, Tillamook-200/233
CPU package	TCP
Switchable processor speed (Y/N)	Yes
Minimum working speed	0MHz
CPU core voltage	2.45V/1.8V/1.8V
CPU I/O voltage	3.3V/2.5V/2.5V

1.3.6 BIOS

Table 1-7 BIOS Specifications

Item	Specification
BIOS vendor	Acer
BIOS version	V3.0
BIOS in flash EPROM (Y/N)	Yes
BIOS ROM size	256KB
BIOS package type	32-pin PLCC
Same BIOS for STN color/TFT color (Y/N)	Yes

The BIOS can be overwritten/upgradeable using the "AFLASH" utility (AFLASH.EXE). Please refer to software specification section for details.

1.3.7 System Memory

Memory is upgradeable from 16 to 80 MB, employing 16-/32-/64-MB 64-bit soDIMMs (Small Outline Dual Inline Memory Modules). After installing the memory modules, the system automatically detects and reconfigures the total memory size during the POST routines. The following lists important memory specifications.

- Memory bus width: 64-bit
- Expansion RAM module type:144-pin, 64-bit, small outline Dual Inline Memory Module (soDIMM)

- Expansion RAM module size/configuration:
  - 8MB (1M*16x4)
  - 16MB (2M*8x8)
  - 32MB (4M*16x4)
  - 64MB (8M*8x8)
- Expansion RAM module speed/voltage/package: 60ns/3.3v/TSOP EDO
- EDO and fast-page mode DIMMs may be used together in a memory configuration.

The following table lists all possible memory configurations.

Table 1-8 Memory Configurations

On Board	Slot 1	Total Memory
16 MB	0 MB	16 MB
16 MB	16 MB	32 MB
16 MB	32 MB	48 MB
16 MB	64MB	80 MB

1.3.8 Second-Level Cache

This notebook has 256KB second-level (L2) cache onboard.

1.3.9 Video Memory

Table 1-9 Video RAM Configuration

Item	Specification
Fixed or upgradeable	Fixed, build in chip
Memory size/configuration	1.1MB
Memory speed	50ns
Memory voltage	3.3V

1.3.10 Video

Table 1-10 Video Hardware Specification

Item	Specification
Video chip	NeoMagic 2097
Working voltage	3.3V

External CRT Resolution Support

Table 1-11 Supported External CRT Resolutions

Resolution x Color on External CRT	CRT Refresh Rate		Simultaneous on TFT LCD	Simultaneous on STN LCD
	CRT only	Simultaneous	SVGA	SVGA
640x480x16	60	60	Y	Y
640x480x256	60,75,85	60	Y	Y
640x480x65,536	60,75,85	60	Y	Y
640x480x16,777,216	60,75,85	60	Y	Y
800x600x256	60,75,85	60	Y	Y
800x600x65,536	60,75,85	60	Y	Y
1024x768x256	60,75,85	60	Y	Y

LCD Resolution Support

Table 1-12 Supported LCD Resolutions

Resolution x Color on LCD Only*	TFT LCD (SVGA)	DSTN LCD (SVGA)
640x480x16	Y	Y
640x480x256	Y	Y
640x480x65,536	Y	Y
640x480x16,777,216	Y	Y
800x600x256	Y	Y
800x600x65,536	Y	Y
1024x768x256	Y	Y

* Maximum resolution (External CRT): 1024x768

Using software, you can set the LCD to a higher resolution than its physical resolution, but the image shown on the LCD will pan.

1.3.11 Parallel Port

Table 1-13 Parallel Port Configurations

Item	Specification
Number of parallel ports	1
ECP support	Yes (set by BIOS setup)
Connector type	25-pin D-type
Location	Rear side
Selectable parallel port (by BIOS Setup)	• Parallel port : Enabled / Disabled • Base Address: 378h/278h/3BCH • IRQ: 7/ 5

1.3.12 Serial Port

Table 1-14 Serial Port Configurations

Item	Specification
Number of serial ports	1
16550 UART support	Yes
Connector type	9-pin D-type
Location	Rear side
Selectable serial port (by BIOS Setup)	• Serial Port : Enabled / Disabled • Base Address : 3F8h / 2F8h / 3E8h / 2E8h • IRQ: 4 /11

1.3.13 Audio

Table 1-15 Audio Specifications

Item	Specification
Chipset	YMF715
Audio onboard or optional	Built-in
Mono or stereo	Stereo
Resolution	16-bit
Compatibility	SB-16 , Windows Sound System
Mixed sound sources	Voice, Synthesizer, Line-in, Microphone, CD
Voice channel	8-/16-bit, mono/stereo
Sampling rate	44.1 kHz
Internal microphone	No
Internal speaker / quantity	Yes / 2 pcs.
Microphone jack	Yes
Headphone jack	Yes

1.3.14 PCMCIA

PCMCIA is an acronym for Personal Computer Memory Card International Association. The PCMCIA committee set out to standardize a way to add credit-card size peripheral devices to a wide range of personal computers with as little effort as possible.

There are two type II/I or one type III PC Card slots found on the left panel of the notebook. These slots accept credit-card-sized cards that enhances the usability and expandability of the notebook.

ZV (Zoomed Video) port support allows your system to support hardware MPEG in the form of a ZV PC card.

Table 1-16 PCMCIA Specifications

Item	Specification
Chipset	O2 Micro OZ6833
Supported card type	Type-II / Type-III
Number of slots	Two Type-II or one Type-III
Access location	Left side
ZV (Zoomed Video) port support	Yes

1.3.15 Touchpad

Table 1-17 Touchpad Specifications

Item	Specification
Vendor & model name	Synaptics TM3202TPD-226
Power supply voltage (V)	5 ± 10%
Location	Palm-rest center
Internal & external pointing device work simultaneously	Yes
Support external pointing device hot plug	Yes
X/Y position resolution (points/mm)	20
Interface	PS/2 (compatible with Microsoft mouse driver)

1.3.16 Keyboard

Table 1-18 Keyboard Specifications

Item	Specification
Vendor & model name	SMK KAS1901-0161R (English)
Total number of keypads	84/85 keys
Windows 95 keys	Yes, (Logo key / Application key):
Internal & external keyboard work simultaneously	Yes

Windows 95 Keys

The keyboard has two keys that perform Windows 95-specific functions. See Table 1-26.

Table 1-19 Windows 95 Key Descriptions

Key	Description
Windows logo key	Start button. Combinations with this key performs special functions, e.g.: • *Windows + Tab* Activate next Taskbar button • *Windows + E* Explore My Computer • *Windows + F* Find Document • *Windows + M* Minimize All • *Shift + Windows + M* Undo Minimize All • *Windows + R* Display Run dialog box
Application key	Opens the application's context menu (same as right-click).

1.3.17 FDD

Table 1-20 FDD Specifications

Item	Specification		
Vendor & model name	Mitsumi D353F2		
Floppy Disk Specifications			
Media recognition	2DD (720K)	2HD (1.2M, 3-mode)	2HD (1.44M)
Sectors / track	9	15	18
Tracks	80	80	80
Data transfer rate (Kbits/s)	250 300	500	500
Rotational speed (RPM)	300 360	360	300
Read/write heads	2		
Encoding method	MFM		
Power Requirement			
Input Voltage (V)	+5 ± 10%		

1.3.18 HDD

Table 1-21 HDD Specifications

Item	Specification		
Vendor & Model Name	Hitachi DK225A-21	IBM DTNA22160	IBM DDLA21620
Drive Format			
Capacity (MB)	2160	2160	1620
Bytes per sector	512	512	512
Logical heads	16	16	16
Logical sectors	63	63	63
Drive Format			
Logical cylinders	4889	4200	3152
Physical read/write heads	6	6	3
Disks	3	3	2

Table 1-21 HDD Specifications

Item	Specification		
Spindle speed (RPM)	4464	4000	4000
Performance Specifications			
Buffer size (KB)	128	96	96
Interface	ATA-3(IDE)	ATA-3	ATA-3
Data transfer rate (disk-buffer, Mbytes/s)	5.7 ~ 9.0	5 ~ 7.7	5 ~ 8.3
Data transfer rate (host-buffer, Mbytes/s)	16.6 /33.3 (max., PIO mode 4)	16.6 (max., PIO mode 4)	16.6 (max., PIO mode 4)
DC Power Requirements			
Voltage tolerance (V)	5 ± 5%	5 + 5%	5 ± 5%

1.3.19 CD-ROM

Table 1-22 CD-ROM Specifications

Item	Specification
Vendor & Model Name	Teac-20X
Performance Specification	
Speed (KB/sec)	2100 (ave. speed), 3000 (max.)
Access time (ms)	150 (Typ.)
Buffer memory (KB)	128
Interface	Enhanced IDE (ATAPI) compatible
Applicable disc format	CD-DA, CD-ROM, CD-ROM XA (except ADPCM), CD-I, Photo CD (Multisession), Video CD, CD+
Loading mechanism	Soft eject (with emergency eject hole)
Power Requirement	
Input Voltage (V)	5

1.3.20 Battery

Table 1-23 Battery Specifications

Item	Specification
Battery gauge on screen	Yes, by hotkey
Vendor & model name	Solomonbtp-1631(pack)/Toshiba(cell)
Battery type	NiMH
Cell capacity (mAH)	3500
Cell voltage (V)	1.2
Number of battery cell	7-cell
Package configuration	7 serial
Package voltage (V)	8.4

Table 1-23   Battery Specifications

Item	Specification
Package capacity (WAH)	3500
Second battery	No

1.3.21 Charger

To charge the battery, place the battery pack inside the battery compartment and plug the AC adapter into the notebook and an electrical outlet. The adapter has three charging modes:

- Rapid mode

  The notebook uses rapid charging when power is turned off and a powered AC adapter is connected to it. In rapid mode, a fully depleted battery gets fully charged in approximately two hours.

- Charge-in-use mode

  When the notebook is in use with the AC adapter plugged in, the notebook also charges the battery pack if installed. This mode will take longer to fully charge a battery than rapid mode. In charge-in-use mode, a fully depleted battery gets fully charged in approximately six to eight hours.

- Trickle mode

  The adapter charges the battery pack for two hours using trickle current 17 ± 3mA, then shifts to 1/10 duty pulse trickle charge to keep the battery capacity at 100%.

Table 1-24   Charger Specifications

Item	Specification
Vendor & model name	Ambit T62.096.C.00
Input voltage (from adapter, V)	0-24
Output current (to DC/DC converter, A)	4.3
Battery Low Voltage	
Battery Low 1 level (V)	8.2 ± 0.15
Battery Low 2 level (V)	7.8 ± 0.15
Battery Low 3 level (V)	6.8 ± 0.15
Charge Current	
Background charge (charge even system is still operative, A)	0.9 ± 0.1 (typ.)
Normal charge (charge while system is not operative, A)	2.0 ± 0.1(typ.)
Charging Protection	
Maximum temperature protection ( )	60

1.3.22 DC-DC Converter

DC-DC converter generates multiple DC voltage level for whole system unit use.

Table 1-25 DC-DC Converter Specifications

Item	Specification					
Vendor & model name	Ambit T62.095.C.00					
Input voltage (Vdc)	8~21					
Output Rating	**5V**	**3.3V**	**Vcpu (2.47 /2.15 /1.8V/2.0V)**	**+12V**	**+6V**	**5VSB**
Current (w/ load, A)	0~3.2	0~3.3	0~6	0~0.15	0~0.1	0.005
Voltage ripple (max., mV)	50	50	50	100	300	75
Voltage noise (max., mV)	100	100	100	200	500	250
OVP (Over Voltage Protection, V)	6.1~8.0	4.2~6.2	3-4	-	-	-
OCP (Over Current Protection, A)	4-6	4-6	6.5-9	0.3-0.4	-	-

1.3.23 DC-AC Inverter

DC-AC inverter is used to generate very high AC voltage, then supply to LCD CCFT backlight use, and is also responsible for the control of LCD brightness. Avoid touching the DC-AC inverter area while the system unit is turned on.

Table 1-26 DC-AC Inverter Specifications

Item	Specification		
Vendor & model name	Ambit T62.104.C.00		
Input voltage (V)	6.8(in.)	-	22(max.)
Input current (mA)	-	-	750 (max.)
Output voltage (Vrms, no load)	1000 (min.)	-	1600 (max.)
Output voltage frequency (kHz)	40 (min.)	-	65 (max.)
Output current (mArms)	1.0~5.5 (min.)	1.5~6.1 (typ.)	2.0~6.7 (max.)

1.3.24 LCD

Table 1-27 LCD Specifications

Item	Specification		
Vendor & model name	TORiSAN LM-JK53-22NFQ	TORiSAN LM-JK53-22NFR-A	HITACHI TX31D21VC
Mechanical Specifications			
LCD display area (diagonal, inch)	12.1	12.1	12.1
Display technology	STN	STN	TFT
Resolution	SVGA (800x600)	VGA (800x600)	SVGA (800x600)

Table 1-27 LCD Specifications

Item	Specification		
Supported colors	--	--	262,144 colors
Optical Specification			
Contrast ratio	40 (typ.)	40 (typ.)	80 (typ.)
Brightness (cd/m^2)	70 (typ.)	70 (typ.)	70 (typ.)
Brightness control	keyboard hotkey	keyboard hotkey	keyboard hotkey
Contrast control	using keyboard hotkey	using keyboard hotkey	none
Electrical Specification			
Supply voltage for LCD display (V)	3.3 or 5 (typ.)	3.3 or 5 (typ.)	3.0 ~ 3.6 (typ.)
Supply voltage for LCD backlight (Vrms)	630 (typ.)	630 (typ.)	595(typ.), 660(max)

1.3.25 AC Adapter

Table 1-28 AC Adapter Specifications

Item	Specification
Vendor & model name	Delta ADP-45GB Rev. E3, E5
Input Requirements	
Nominal voltages (Vrms)	90 - 270
Nominal frequency (Hz)	47 - 63
Frequency variation range (Hz)	47 - 63
Maximum input current (A, @90Vac, full load)	1.5 A
Inrush current	The maximum inrush current will be less than 50A and 100A when the adapter is connected to 115Vac(60Hz) and 230Vac(50Hz) respectively.
Efficiency	It should provide an efficiency of 83% minimum, when measured at maximum load under 115V(60Hz).
Output Ratings (CV mode)	
DC output voltage (V)	+19.0V~20.5V
Noise + Ripple (mV)	300mvp-pmax (20Mhz bandwidth)
Output Ratings (CV mode)	
Load (A)	0 (min.) 2.4 (max.)
DC output voltage (V)	+12 ~+19
Constant output (A)	2.75 ± 0.2
Dynamic Output Characteristics	
Turn-on delay time (s, @115Vac)	2
Hold up time (ms; @115 Vac input, full load)	5 (min.)
Over Voltage Protection (OVP, V)	26

Table 1-28 AC Adapter Specifications

Item	Specification
Short circuit protection	Output can be shorted without damage
Electrostatic discharge (ESD, kV)	±15 (at air discharge)
Dielectric Withstand Voltage	
Primary to secondary	3000 Vac (or 4242 Vdc), 10 mA for 1 second
Leakage current	0.25 mA maximum @ 254 Vac, 60Hz.
Regulatory Requirements	
Internal filter meets: 1. FCC class B requirements. (USA) 2. VDE 243/1991 class B requirements. (German) 3. CISPR 22 Class B requirements. (Scandinavia) 4. VCCI class II requirements. (Japan)	

1.4 Software Configuration and Specification

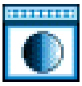
1.4.1 BIOS

The BIOS is compliant to PCI v2.1, APM v1.2, E-IDE and PnP specification. It also defines the hotkey functions and controls the system power-saving flow.

Keyboard Hotkey Definition

The notebook supports the following hotkeys.

Table 1-29 Hotkey Descriptions

Hotkey	Icon	Function	Description
Fn-Esc		Hotkey Escape	Exits the hotkey control.
Fn-F1	?	Hotkey Help	Displays the hotkey list and help. Press │ to exit the screen.
Fn-F2		Brightness Control  Contrast Control 	Toggles between brightness control and contrast control. Press the scale hotkeys (Fn- →and Fn -←) to increase and decrease the brightness or contrast level. Notebooks with TFT displays do not show the brightness control icon.
Fn-F3		Display Toggle	Switches display from LCD to CRT to both LCD and CRT.
Fn-F4		Battery Gauge 	Displays the battery gauge.
Fn-F5		Volume Control 	Press the scale hotkeys (Fn-→ and Fn-←) to increase and decrease the output level.
Fn-F6		Setup	Gains access to BIOS Setup's Advanced System Configuration parameters.
Fn-F7		Hibernation/Standby	Enters hibernation mode if the 0-volt suspend function is installed and enabled; otherwise, the notebook enters standby mode.
Fn-→		Scale Increase	Increases the setting of the current icon.
Fn-←		Scale Decrease	Decreases the setting of the current icon.
Fn-T		Toggle Touchpad	Turns the internal touchpad on and off.



When the available hotkey is toggled, the system will issue a beep to enter the assigned process.

MultiBoot

The system can boot from the FDD, External FDD, HDD, or CD-ROM. The user can select the desired booting process to boot the system. If the CD-ROM is bootable, the BIOS will override the other process to boot the system directly.

Power Management

This computer has a built-in power management unit that monitors system activity. System activity refers to any activity involving one or more of the following devices: keyboard, mouse, floppy drive, hard disk, peripherals connected to the serial and parallel ports, and video memory. If no activity is detected for a period of time (called an inactivity time-out), the computer stops some or all of these devices in order to conserve energy.

This computer employs an innovative power management technique called Heuristic Power Management or HPM. HPM allows the computer to provide maximum power conservation and maximum performance at the same time.

Power management methods used by most computers are timer-based. You set inactivity time-out values for the display, hard disk, and other devices. The computer then "sleeps" when these time-outs elapse. The problem with this is that no two users are alike. Each of us has his or her own habits when using the computer, which makes timer-based power management ineffective.

With HPM, your computer manages its power according to the way you use your computer. This means the computer delivers maximum power when you need it, and saves power when you don't need the maximum — all without your intervention. There are no timers to set, because the HPM system figures out everything for you.

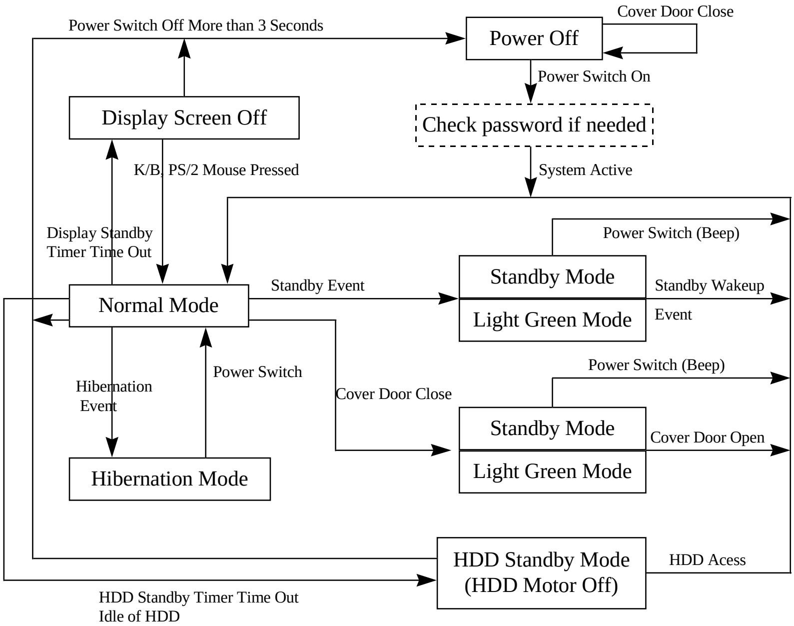


Figure 1-3   Power Management Block Diagram

ON MODE

Normal full-on operation

STANDBY MODE

The computer consumes very low power in standby mode. Data remain intact in the system memory until battery is drained.

Warning: Unstored data is lost when you turn off the computer power in standby mode or when the battery is drained.

Table 1-30 Standby Mode Conditions and Descriptions

Condition	Description
The condition to enter Standby Mode	There are two necessary conditions for the computer to enter standby mode: • Heuristic Power Management Mode must be set to [ENABLED]. In this situation, the following are ways to enter standby mode: • Pressing the sleep hot key Fn-F7 • If the waiting time determined by the computer's HPM unit elapses without any system activity. • Closing the display cover. • With the System Sleep State is set to [HIBERNATION], the computer also enters standby mode if the hibernation file (Sleep Manager) is invalid or not present. • "Hard Disk Drive" is [Disabled] in System Security of BIOS SETUP. • "Hard Disk 0" is [None] in Basic System Configuration of BIOS SETUP. **Note:** If the computer detects a PC I/O card installed in the PC card slots, the computer "sleeps" (light green mode) to maintain your communications connection. It will not enter standby mode.
The condition of Standby Mode	• Issue a beep. • The standby indicator flashes. • Disable the mouse, serial and the parallel port. • The keyboard controller, HDD and VGA enter the standby mode. • Stop the CPU internal clock. • All the functions are disabled except the keyboard, battery low warning and modem ring wake up from standby (if enabled).
The condition back to On Mode	Any one of following activities will let system back to Normal Mode: • Any keystroke (Internal KB or External KB) • Any active pointing device (internal or external, PS/2 or serial or USB) • Resume Timer matched • Opening the display cover if you closed the display cover to enter Standby mode. • Modem ring

LIGHT GREEN MODE

The notebook consumes very low power in light green mode. Data and I/O connections remain intact in the system memory until battery is drained.

Table 1-31 Light Green Mode Conditions and Descriptions

Condition	Description
The condition to enter Light Green Mode	• PCMCIA I/O Card detected and occupy resources (Non Cardbus mode). • HPM timer times out or cover close or APM standby / suspend function calls.
The condition of Light Green Mode	• Issue a beep. • Only HDD, VGA enter standby
The condition back to On Mode	Any one of following activities will let system back to Normal Mode: • Any keystroke (Internal KB or External KB) • Any active pointing device (internal or external, PS/2 or serial or USB) • Resume Timer matched • Modem ring

HIBERNATION MODE

In hibernation mode, all power shuts off (the computer does not consume any power). The computer saves all system information onto the hard disk before it enters hibernation mode. Once you turn on the power, the computer restores this information and resumes where you left off upon leaving hibernation mode.

If the computer beeps but does not enter hibernation mode after pressing the sleep hot key, it means the operating system will not allow the computer to enter the power saving mode.

Do not change any devices (such as add memory or swap hard disks when the computer is in hibernation mode.

If the computer detects a PC I/O card installed in the PC card slots, the computer enters light green mode to maintain your communications connection. It will not enter standby nor hibernation mode.

Table 1-32 Hibernation Mode Conditions and Descriptions

Condition	Description
The condition to enter Hibernation Mode	There are two necessary conditions for the computer to enter standby mode: • Heuristic Power Management Mode must be set to [ENABLED]. • The hibernation file created by Sleep Manager must be present and valid. In this situation, the following are ways to enter hibernation mode: • Pressing the sleep hot key Fn-F7 • “Hard Disk Drive” is not [Disabled] in System Security of BIOS SETUP. • “Hard Disk 0” is not [None] in Basic System Configuration of BIOS SETUP. • If the waiting time determined by the computer’s HPM unit elapses without any system activity. • If a battery low condition takes place, the computer enters hibernation mode in about three minutes. The Sleep Upon Battery-low parameter in Setup must be set to [ENABLED]. • Invoked by the operating system power saving modes
The condition of Hibernation Mode	• Except the RTC, KB controller and power switch, all the system components are off.
The condition back to On Mode	• Pressing the power switch. • Resume Timer matched

DISPLAY STANDBY MODE

Screen activity is determined by the keyboard, the built-in touchpad, and an external PS/2 pointing device. If these devices are idle for the period determined by the computer’s HPM unit, the display shuts off until you press a key or move the touchpad or external mouse.

Table 1-33 Display Standby Mode Conditions and Descriptions

Condition	Description
The condition to enter Display Standby Mode	• Pointing device is idle until Display Standby Timer times-out or LCD cover is closed.
The condition of Display Standby Mode	• All the system components are on except LCD backlight and CRT horizontal frequency output (if CRT is connected)
The condition back to On Mode	• Any keystroke (Internal KB or External KB) • Pointing device activity

The VGA BIOS should support DPMS (Desktop Power Management System) for the standby and hibernation mode function call. When the Display Standby Timer expires, the system BIOS will execute the DPMS service routines.

HARD DISK STANDBY MODE

The hard disk enters standby mode when there are no disk read/write operations within the period of time determined by the computer’s HPM unit. In this state, the power supplied to the hard disk is reduced to a minimum. The hard disk returns to normal once the computer accesses it.

Table 1-34 Hard Disk Standby Mode Conditions and Descriptions

Condition	Description
The condition to enter HDD Standby Mode	Display Standby HPM timer times-out or LCD cover is closed.
The condition of HDD Standby Mode	All the system components are on except HDD spindle motor
The condition back to On Mode	Any access to HDD

BATTERY LOW

When the battery capacity is low and no adapter is plugged in, the system will generate the following battery low warning:

- Flash power LED with 1 Hz.
- Issue 4 short beeps per minute (if enabled in setup).
- If the AC adapter does not plug in within 3 minutes and the “Standby/Hibernation upon Battery-low” in BIOS SETUP is enabled, the system will enter Standby/0-Volt Hibernation Mode. The battery low warning will stop as soon as the AC adapter is plugged into the system.

THE AUTODIM PROCESS OF THE LCD BRIGHTNESS

The notebook has a unique **“automatic dim”** power saving feature. When the notebook is using AC power and you disconnect the AC adapter from the notebook, the system “decides” whether or not to automatically dim the LCD backlight to save power.

If the LCD backlight is too bright, the system automatically adjusts it to a manageable level; otherwise, the level stays the same. If you want a brighter picture, you can then adjust the brightness and contrast level using hotkeys (Fn-F2).

If you reconnect AC power to the system, the system automatically adjusts the LCD backlight to its original level — the brightness and contrast level before disconnecting the AC adapter. If you adjusted the brightness and contrast level after disconnecting AC power, the level stays the same after you reconnect the AC adapter.

There are two reasons for the notebook to have the LCD AutoDim feature. The first is to save the power during the notebook is operating under the DC mode. The second is to save the “favorite” brightness parameter set by the user.

The following processes are the basic methods used to implement the LCD brightness AutoDim.

1. If the original brightness is over 75% and the AC power is on-line, the BIOS will change the brightness to 75% after the AC power is off-line.

2. If the original brightness is below 75%, the brightness maintains the same level even if the AC power is off-line.

3. If the brightness is already changed by the hotkey under DC power, it will not be changed after the AC power is plugged in.

4. If the brightness is not changed by the hotkey under DC power, the brightness will be changed back to the old setting — the previous brightness parameter under AC power.

5. If the previous brightness parameter does not exist, the brightness will not be changed in process 4.

1.4.2 Drivers, Applications and Utilities

The notebook comes preloaded with the following software:

- Windows 95[1]
- System utilities and application software[2]
    - Sleep Manager utility
    - Display drivers
    - Audio drivers
    - PC Card slot drivers and applications
    - Other third-party application software

Table 1-35 Location of Drivers in the System Utility CD

Device Category	Function	Location
Sound, video and game controllers	Audio	ENGLISH\WIN95\AUDIO\
Mouse	Mouse	ENGLISH\WIN95\MOUSE\
Display adapters	Video	ENGLISH\WIN95\VGA\
PCMCIA	Zoomed Video Port	English\Win95\PCMCIA\

1 In some areas, a different operating system may be pre-loaded instead of Windows 95.

2 The system utilities and application software list may vary.

To re-install applications under Windows 95, click on Start, then Run…. Based on the location of the application, run the setup program to install the application. The following table lists the applications and their locations:

Table 1-36 Location of Applications in the System Utility CD

Name	Function	Location
Sleep Manager	0V Suspend utility	ENGLISH\WIN95\SLEEPMGR\
Y-Station	Audio application	ENGLISH\WIN95\Ystation
SafeOFF	Protect if user accidentally press the power switch	ENGLISH\WIN95\SAFEOFF

Drivers for Windows 3.x and Windows NT are also found in the System Utility CD if you should need them.

1.5 Block Diagrams

1.5.1 System

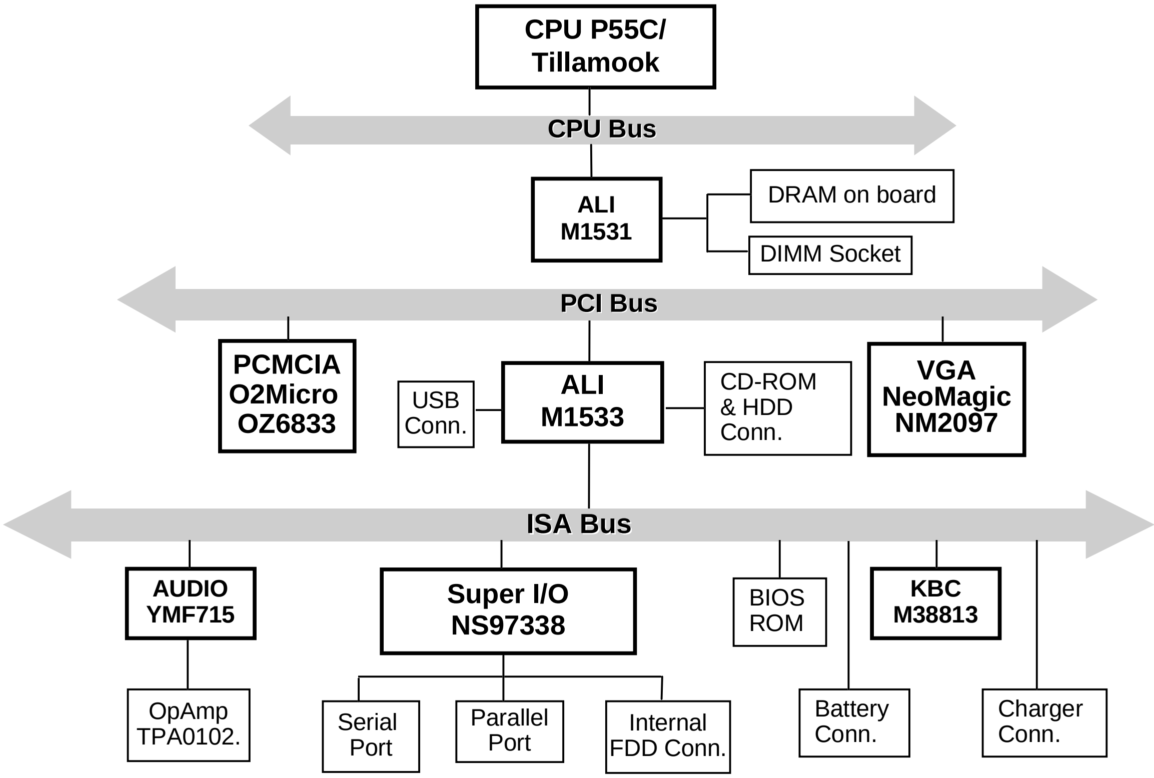


Figure 1-4 System Block Diagram

1.5.2 Clock

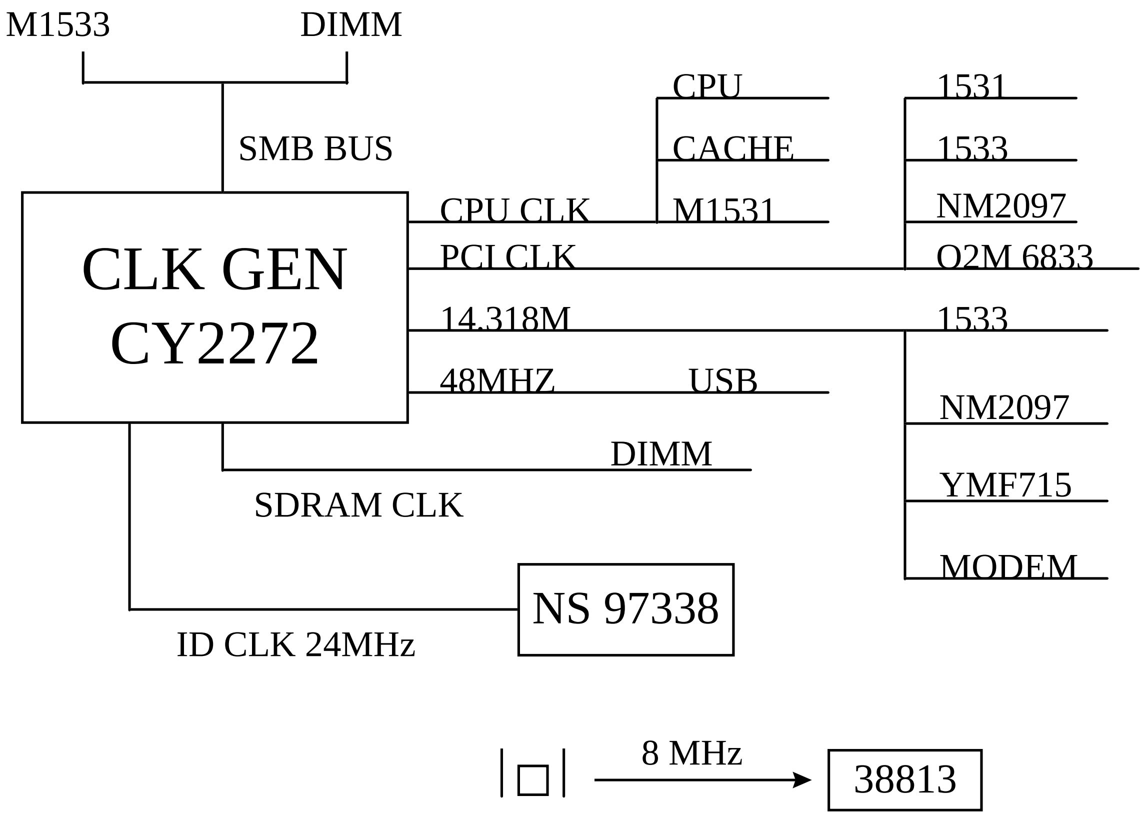


Figure 1-5 Clock Block Diagram

1.6 Environmental Requirements

Table 1- 37 Environmental Requirements

Item	Specification
Temperature	
Operating ( )	+5~ +35
Non-operating( )	-20 ~ +60
Humidity	
Operating (non-condensing)	20% ~ 85%
Non-operating (non-condensing)	20% ~ 90%
Operating Vibration (unpacked)	
Operating	5 - 25.6Hz, 0.38mm; 25.6 - 250Hz, 0.5G
Sweep rate	0.5 octave / minute
Number of test cycles	2 / axis (X,Y,Z)
Non-operating Vibration (unpacked)	
Non-operating	5 - 27.1Hz, 0.6G; 27.1 - 50Hz, 0.41mm; 50-500Hz, 2G
Sweep rate	0.5 octave / minute
Number of text cycles	4 / axis (X,Y,Z)
Non-operating Vibration (packed)	
Non-operating	5 - 62.6Hz, 0.51mm; 62.6-500Hz, 4G
Sweep rate	0.5 octave / minute
Number of text cycles	4 / axis (X,Y,Z)
Shock	
Non-operating (unpacked)	40G peak, 11±2ms, half-sine
Non-operating (packed)	50G peak, 11±2ms, half-sine
Altitude	
Operating	10,000 feet (5°C ~ 40°C)
Non-operating	40,000 feet (-20°C ~ 60°C)
ESD	
Air discharge	8kV (no error) 12.5kV (no restart error) 15kV (no damage)
Contact discharge	4kV (no error) 6kV (no restart error) 8kV (no damage)

1.7 Mechanical Specifications

Table 1-38 Mechanical Specifications

Item	Specification
Weight FDD model CD-ROM model	(includes battery) 2.77 kg. (6.11 lb.) 2.89 kg. (6.37 lb.)
Dimensions (main footprint)	W x D x H 310mm x 245mm x 46mm (12.2” x 9.65” x 1.81”)

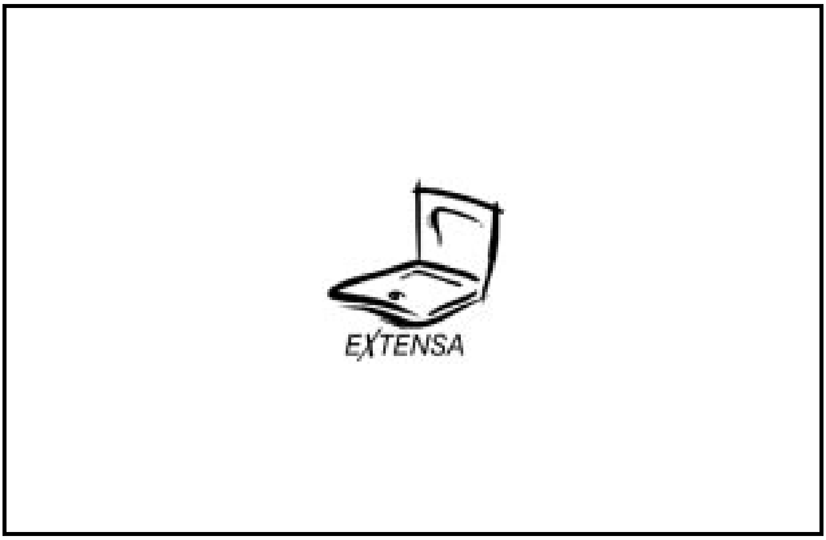
Chapter 2

BIOS Setup

The Setup Utility is a hardware configuration program built into your computer's BIOS (Basic Input/Ouput System).

Your computer is already properly configured and optimized, and you do not need to run this utility. However, if you encounter configuration problems, you may need to run Setup. Please also refer to Chapter 6, Troubleshooting when a problem arises.

To activate the Setup Utility, press **F2** after you hear a beep while the Extensa logo is being displayed.



When Silent Boot (described later in this chapter) is disabled, a message displays telling you when you can press F2 to run the Setup Utility.

```
BIOS V3.0
----------------------------------------------------------------------------------------------------
016384 KB Memory Good




Enter Setup, Press F2 Key
----------------------------------------------------------------------------------------------------
ACR58000-M12-970324-R01-A0-EN
Copyright © Acer Incorporated 1990-1997.  All Rights Reserved
```

Pressing **F2** brings up the main screen of the Setup Utility.

SETUP Utility
Basic System Settings **Startup Configuration** **Onboard Devices Configuration** **System Security** **Power Management** **Load Default Settings**
↑↓→←**=Move Highlight Bar,** ↵**=Select, Esc=Exit**

Press the cursor keys (↑↓→←) to move the highlight bar, then press **Enter** to make a menu selection.

2.1 Basic System Settings

The Basic System Settings screen contains parameter items involving basic computer settings.

```
                         Basic System Settings

Date ------------------------------------ [Thu Jun. 11, 1998]
Time ------------------------------------ [10:00:00]

Floppy Disk A  -------------------------- [1.44 MB 3.5-inch]
Floppy Disk B  -------------------------- [      None      ]

                                            Cylinders Heads Sectors Size(MB)
Hard Disk  ------------------------------ [Auto]  xxxx    xx     xx    xxxx

        ↑↓=Move Highlight Bar, →←=Change Setting, Esc=Exit
```

Press ↑ and ↓ to move the highlight bar; press → and ← to change the setting of the highlighted parameter. To exit this screen and return to the main screen, press **Esc**.

The following table describes the parameters in this screen. Settings in **boldface** are the default and suggested parameter settings.

Table 2-1 Basic System Settings Parameters

Parameter	Description	Setting or Format
Date	Sets the computer's system date	Day of the Week-Month-Day-Year
Time	Sets the computer's system time	Hour:Min:Sec
Floppy Disk A	Selects the floppy disk drive type.	**1.44 MB 3.5-inch** None
Floppy Disk B	Selects the floppy disk drive type. In most cases, you only have need for one floppy disk drive (A), so this is normally set to *None*.	**None** 1.44 MB 3.5-inch
Hard Disk	Selects the hard disk drive type. When set to *User*, you need to specify the Cylinder, Head and Sector information. For hassle-free and correct drive detection, this should be set to *Auto*.	**Auto** User None

2.2 Startup Configuration

The Startup Configuration screen contains parameter items that are set up when the computer starts up.

Startup Configuration

Boot Display -------------------------- [Auto]
Memory Test -------------------------- [Enabled]
Silent Boot ---------------------------- [Enabled]
System Boot Drive ------------------ [Drive A Then C]
Boot from CD-ROM ----------------- [Enabled]
CardBus Support ------------------- [Enabled]
USB Function Support ------------ [Disabled]

↑↓=Move Highlight Bar, →←=Change Setting, Esc=Exit

Press ↑ and ↓ to move the highlight bar; press → and ← to change the setting of the highlighted parameter. To exit this screen and return to the main screen, press **Esc**.

The following table describes the parameters in this screen. Settings in **boldface** are the default and suggested parameter settings.

Table 2-2 Startup Configuration Parameters

Parameter	Description	Setting or Format
Boot Display	Sets the display device (computer LCD and/or external monitor) to use when the computer starts (boots) up. When set to *Auto*, the computer outputs to the external monitor if one is connected; otherwise, the computer outputs to the LCD.	**Auto** Both
Memory Test	Runs or skips the memory test.	**Enabled** Disabled
Silent Boot	Hides or displays the POST (Power-on Self-Test) screen messages.	**Enabled** Disabled
System Boot Drive	Sets the startup (boot) sequence of the drives in your computer. For example, when set to *Drive A Then C*, the computer searches for a system (bootable) diskette in drive A first before proceeding with drive C.	**Drive A Then C** Drive C Then A Drive C Drive A

Table 2-2 Startup Configuration Parameters

Parameter	Description	Setting or Format
Boot from CD-ROM	Tells the computer to search for a bootable disc in the CD-ROM drive and boot from that disc. If the computer cannot find a bootable disc, it proceeds according to the System Boot Drive parameter setting.	**Disabled** Enabled
CardBus Support	Enables or disables CardBus support. For more information concerning CardBus, see section 3.7.	**Enabled** Disabled
USB Function Support	Selects support for USB (Universal Serial Bus). Enable this parameter if you are connecting USB device(s) to the computer.	**Disabled** Enabled

2.3 Onboard Devices Configuration

The Onboard Devices Configuration screen contains parameter items that are related to port devices on your computer.

```
Onboard Devices Configuration

Serial Port ----------------------------  [Enabled]
  Base Address ---------------------  [3F8h]
  IRQ  -----------------------------------  [4]
 Parallel Port -------------------------  [Enabled]
  Base Address ---------------------  [378h]
  IRQ  -----------------------------------  [7]
  Operation Mode ------------------  [Bi-directional]
  ECP DMA Channel ---------------  [-]

↑↓=Move Highlight Bar, →←=Change Setting, Esc=Exit
```

Press ↑ and ↓ to move the highlight bar; press → and ← to change the setting of the highlighted parameter. To exit this screen and return to the main screen, press **Esc**.

The following table describes the parameters in this screen. Settings in **boldface** are the default and suggested parameter settings.

Table 2-3 Onboard Devices Configuration Parameters

Parameter	Description	Setting or Format
Serial Port	Enables or disables the serial port	**Enabled** Disabled
Base Address	Sets the I/O base address of the serial port	**3F8h** 2F8h 3E8h 2E8h
IRQ	Sets the IRQ (interrupt request) channel of the serial port	**4** 11
Parallel Port	Enables or disables the parallel port	**Enabled** Disabled
Base Address	Sets the I/O base address of the parallel port	**378h** 278h 3BCh
IRQ	Sets the interrupt request (IRQ) channel of the parallel port	**7** 5
Operation Mode	Selects the operation mode of the parallel port. ECP (Extended Capabilities Port) supports a 16-byte FIFO (first in, first out) which can be accessed by host DMA cycles and PIO cycles, boosting I/O bandwidth to meet the demands of high-performance peripherals.	**Bi-directional** ECP Standard

Table 2-3 Onboard Devices Configuration Parameters

Parameter	Description	Setting or Format
ECP DMA Channel	Sets the DMA channel of the parallel port when the parallel operation mode is set to ECP.	**1** 3

2.4 System Security

The System Security screen contains parameter items that help safeguard and protect your computer from unauthorized use.

```
                              System Security

Disk                               Drive                          Control
   Diskette Drive ---------------------                           [Normal]
   Hard Disk Drive  ------------------                            [Normal]

Setup Password --------------------          [          None          ]
POST Password --------------------           [          None          ]

          ↑↓=Move Highlight Bar, →←=Change Setting, Esc=Exit
```

Press ↑ and ↓ to move the highlight bar; press → and ← to change the setting of the highlighted parameter. To exit this screen and return to the main screen, press **Esc**.

The following table describes the parameters in this screen. Settings in **boldface** are the default and suggested parameter settings.

Table 2-4 System Security Parameters

Parameter	Description	Setting or Format
Diskette Drive (Control)	Sets the control level of the diskette drive.	**Normal** Disabled Write Protect All Sectors Write Protect Boot Sector
Hard Disk Drive (Control)	Sets the control level of the diskette drive.	**Normal** Disabled Write Protect All Sectors Write Protect Boot Sector
Setup Password[1]	Sets (and enables) the setup password. When set, this password protects this Setup Utility from unauthorized entry. Before the computer allows access to the Setup Utility, you need to enter the setup password.	**None** Enabled

1 To set passwords, see section 1.9.2.

Table 2-4 System Security Parameters

Parameter	Description	Setting or Format
Power On Password[1]	Sets (and enables) the power- on password. When set, this password protects the computer from unauthorized entry. At startup, you need to enter the power on password to continue computer operation.	**None** Enabled

2.5 Power Management Settings

The Power Management Settings screen contains parameter items related to power-saving and power management.

Power Management Settings	
Heuristic Power Management Mode --------	**[Enabled]**
Display Always On --------------------------------	**[Disabled]**
Hotkey Beep --	**[Enabled]**
Modem Ring Resume On Indicator ----------	**[Enabled]**
Battery-low Warning Beep ---------------------	**[Enabled]**
Sleep Upon Battery-low ------------------------	**[Enabled]**
↑↓=Move Highlight Bar, →←=Change Setting, Esc=Exit	

Press ↑ and ↓ to move the highlight bar; press → and ← to change the setting of the highlighted parameter. To exit this screen and return to the main screen, press **Esc**.

The following table describes the parameters in this screen. Settings in **boldface** are the default and suggested parameter settings.

Table 2-5 Power Management Settings

Parameter	Description	Setting or Format
Heuristic Power Management Mode	Enables or disables heuristic power management mode. For more information on power management modes, see section 2.2.1.	**Enabled** Disabled
Display Always On	When enabled the computer does not enter display standby mode. **Note:** Always enable this parameter when playing VCDs (Video Compact Disc). If not, the system will enter standby mode after 30 minutes and the screen will go blank.	**Disabled** Enabled
Hotkey Beep	When enabled the computer gives out a “beep” sound every time you use a hotkey. For more information on Hotkeys, see section 1.4.1.	**Enabled** Disabled
Modem Ring Resume On Indicator	When enabled, and an incoming modem ring is detected, the computer wakes up from standby mode. When the computer is off or in hibernation mode, the computer will not resume on a modem ring.	**Enabled** Disabled

Table 2-5 Power Management Settings

Parameter	Description	Setting or Format
Battery-low Warning Beep	Enables or disables warning beeps during a battery-low condition.	**Enabled** Disabled
Sleep Upon Battery-low	Enables or disables the sleep function (hibernation or standby) during a battery-low condition. When the computer is running very low on battery power, the computer will disregard the system sleep state setting and enter hibernation mode if Sleep Manager is installed and the hibernation file is valid (see section 5.1).	**Enabled** Disabled

2.6 Load Default Settings

When you select the Load Default Settings item from the main screen, a dialog box appears asking you to confirm that you want to reset all settings to their factory defaults.

Load Setup Default Settings
Are you sure?

[Yes] **[No]**

Choose **Yes** to confirm or **No** to close the dialog box and return to the main screen.

Chapter 3

Disassembly and Unit Replacement

This chapter contains step-by-step procedures on how to disassemble the notebook computer for maintenance and troubleshooting.

To disassemble the computer, you need the following tools:

- Wrist grounding strap and conductive mat for preventing electrostatic discharge
- Flat-bladed screwdriver
- Phillips screwdriver
- Hexagonal screwdriver
- Tweezers
- Plastic stick

The screws for the different components vary in size. During the disassembly process, group the screws with the corresponding components to avoid mismatch when putting back the components.

3.1 General Information

3.1.1 Before You Begin

Before proceeding with the disassembly procedure, make sure that you do the following:

1. Turn off the power to the system and all peripherals.
2. Unplug the AC adapter and all power and signal cables from the system.
3. Press the battery compartment cover release button and slide out the cover.
4. Pull out the battery pack using the pull loop at the end.

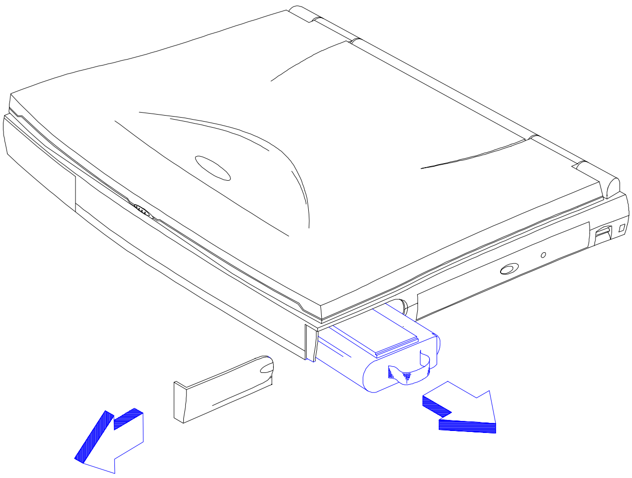


Figure 3-1 Removing the Battery Pack

Removing all power sources from the system prevents accidental short circuit during the disassembly process.

3.1.2 Connector Types

There are two kinds of connectors on the main board:

- Connectors with no locks

  Unplug the cable by simply pulling out the cable from the connector.

- Connectors with locks

  You can use a plastic stick to lock and unlock connectors with locks.

The cables used here are special FPC (flexible printed-circuit) cables, which are more delicate than normal plastic-enclosed cables. Therefore, to prevent damage, make sure that you unlock the connectors before pulling out the cables. Do not force cables out of the connectors.

CONNECTORS WITH LOCKS

- Unplugging the Cable

  To unplug the cable, first unlock the connector by pulling up the two clasps on both sides of the connector with a plastic stick. Then carefully pull out the cable from the connector.

- Plugging the Cable

  To plug the cable back, first make sure that the connector is unlocked, then plug the cable into the connector. With a plastic stick, press the two clasps on both sides of the connector to secure the cables in place.

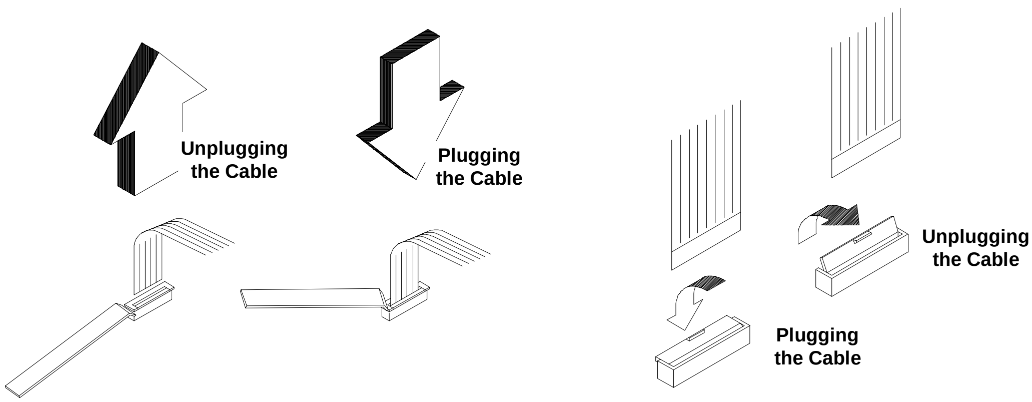


Figure 3-2 Using Connectors With Locks

Connectors mentioned in the following procedures are assumed to be no-lock connectors unless specified otherwise.

3.1.3 Disassembly Sequence

The disassembly procedure described in this manual is divided into four major sections:

- Section 4.2: Installing memory
- Section 4.3: Removing the modem board
- Section 4.4: Removing the hard disk drive
- Section 4.5: Removing the keyboard
- Section 4.6: Disassembling the inside frame assembly
- Section 4.7: Disassembling the display

The following table lists the components that need to be removed during servicing. For example, if you want to remove the motherboard, you must first remove the keyboard, then disassemble the inside assembly frame in that order.

Table 3-1 Guide to Disassembly Sequence

Service Item	Prerequisite
Remove or replace the hard disk drive	
Remove or replace the internal module	Remove the keyboard (and heat sink assembly).
Remove the motherboard for service or replacement	1. Remove the keyboard. 2. Disassemble the housing.
Remove the touchpad	1. Remove the keyboard. 2. Disassemble the housing.
Replace the LCD	Remove the display.
Install CPU	Remove the keyboard (and heat sink assembly).
Install additional memory	

The flowchart on the succeeding page gives a clearer and more graphic representation on the entire disassembly sequence. Please refer to it from time to time, together with the screw list below.

SCREW LIST

• A screw	M2x4L Black	(p/n: 86.1A322.4R0)
• B screw	M2x6L NI	(p/n: 86.1A522.6R0)
• C screw	M2x20L NI	(p/n: 86.1A522.200)
• D screw	M2.5x8L NYLOK B-ZN	(p/n: 86.1A353.8R0)
• E screw	M2.5x6L NYLOK NI	(p/n:86.1A553.6R0)
• F screw	M3x6L BIND NI	(p/n:86.4A524.6R0)
• G screw	M2.5x4L BLACK.NY	(p/n: 86.1A553.4R0)
• H screw	M2x14L NI	(p/n: 86.1A522.140)
• I screw	M2x4L NI	(p/n: 86.1A522.4R0)
• J screw cap	M2*L5 NI	(p/n: 86.7A522.5R0)

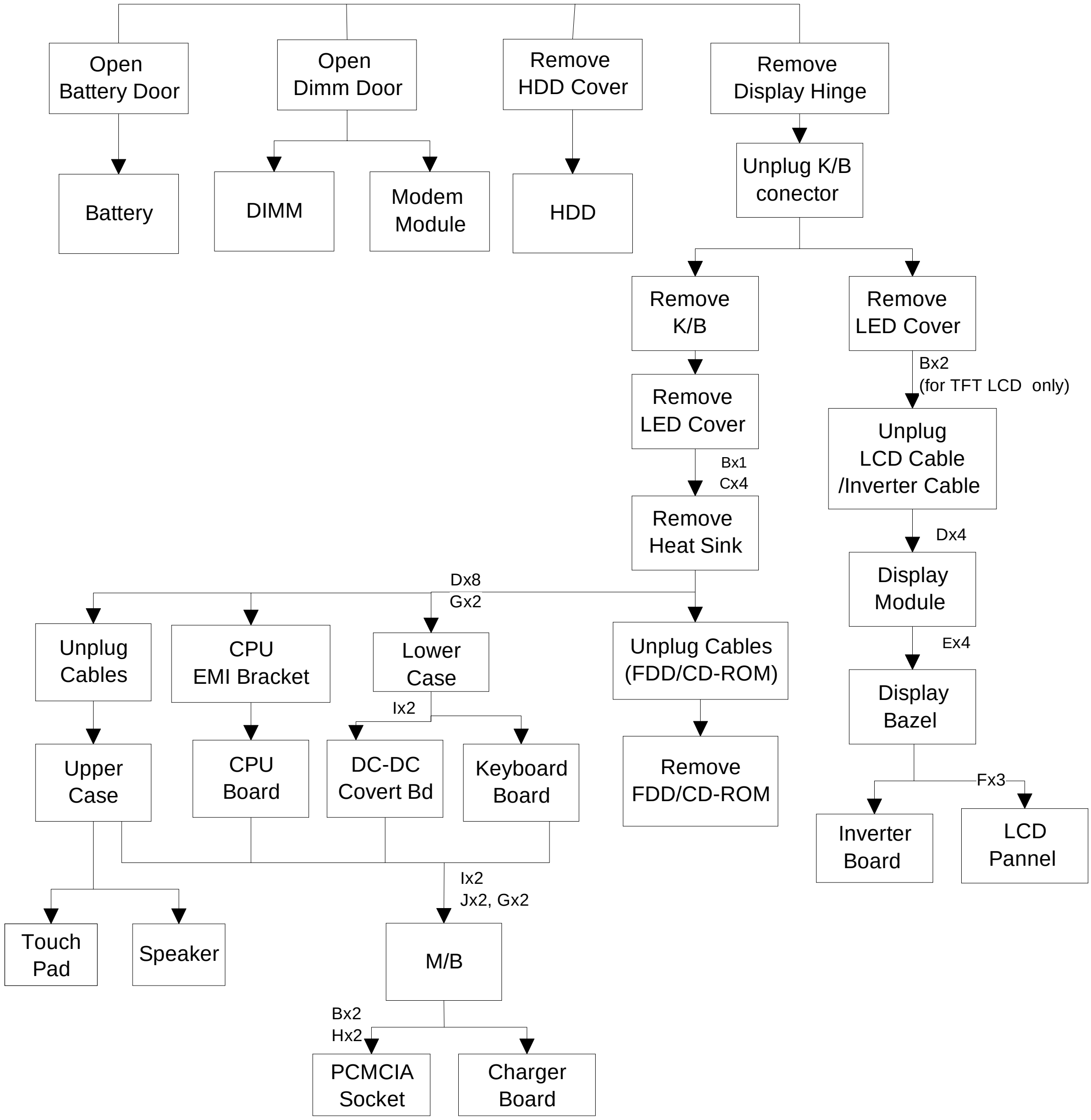


Figure 3-3 Disassembly Sequence Flowchart

3.2 Installing Memory

Follow these steps to insert memory modules:

1. Turn off the computer. Then turn the computer over to access its base.

2. Remove three screws from the memory door; then lift up and remove the memory door.

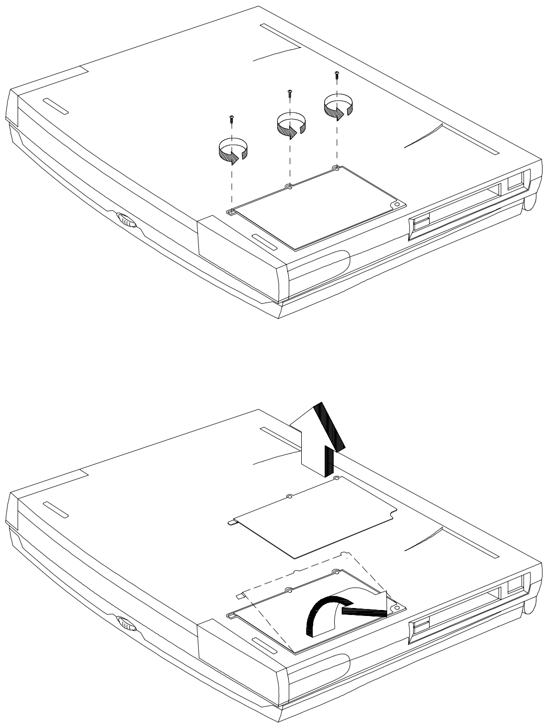


Figure 3-4 Removing the Memory Door

3. Remove the memory modules from its shipping container.

4. Align the connector edge of the memory module with the key in the connector. Insert the edge of the memory module board into the connector. Use a rocking motion to fully insert the module. Push downward on each side of the memory module until it snaps in place.

   To remove the memory module, release the slot locks found on both ends of the memory slot to release the DIMM. Then pull out the memory module.

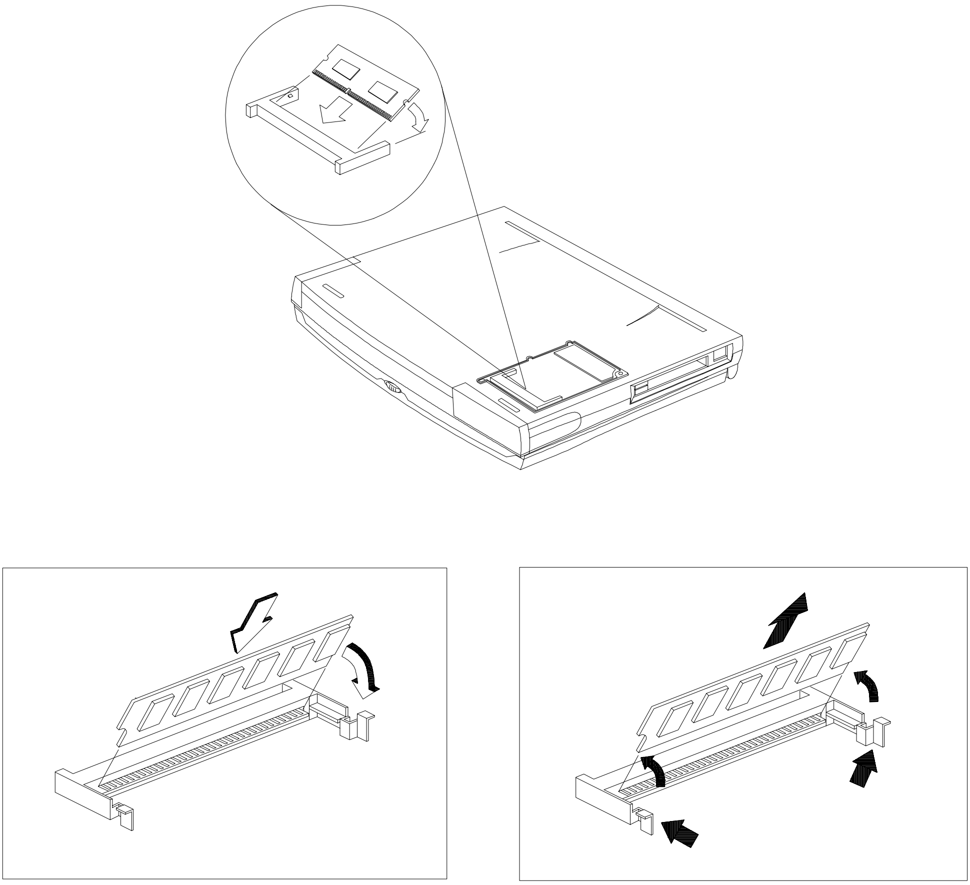


Figure 3-5 Installing and Removing Memory

5. Replace the memory door and secure it with the screws.

Sleep Manager must be run after installing additional memory for the computer to hibernate properly. If Sleep Manager is active, it will automatically adjust the hibernation file on your notebook.

If you are using an operating system other than Windows 95 or DOS, you may need to re-partition your hard disk drive to allow for the additional memory. Check with your system administrator.

3.3 Removing the Modem Board

When you open the memory door, you can also access and replace the modem board. See figure below.

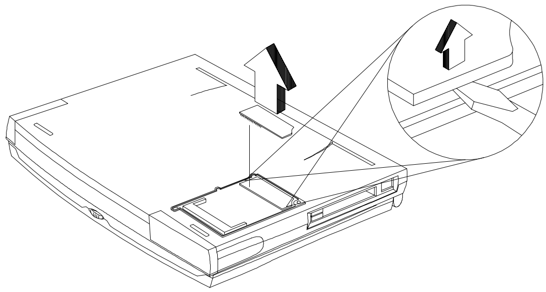


Figure 3-6 Removing the Modem Board

3.4 Removing the Hard Disk Drive

Follow these steps to remove the hard disk drive:

1. Turn the computer over and locate the hard disk drive bay cover.

2. Press the hard disk drive bay cover release and slide the cover out to remove it. Set aside the cover.

3. Pull the hard disk drive tab to remove the hard disk drive from the hard disk drive bay.

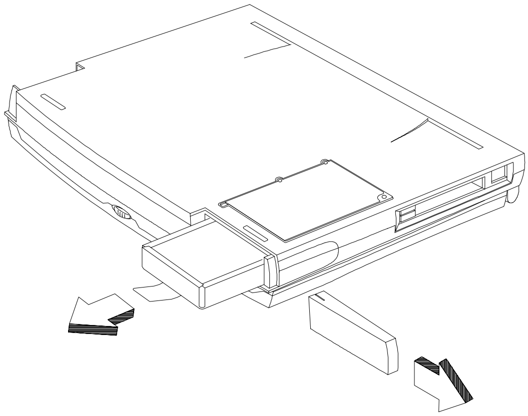


Figure 3-7 Removing the Hard Disk Drive

4. Store the hard disk drive in an antistatic bag.

If you want to install a new hard disk drive, reverse the steps described above.

3.5 Removing the Keyboard

Follow these steps to remove the keyboard:

1. Slide out the two display hinge covers on both sides of the notebook.

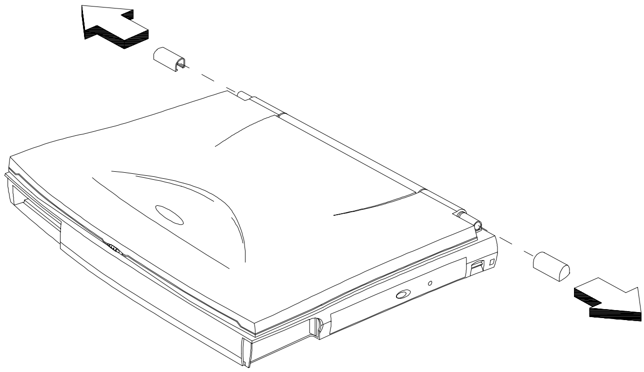


Figure 3-8 Removing the Display Hinge Covers

2. Using a pointed instrument, unlock the keyboard locks. Then pull out and flip down the keyboard to expose the keyboard connectors.

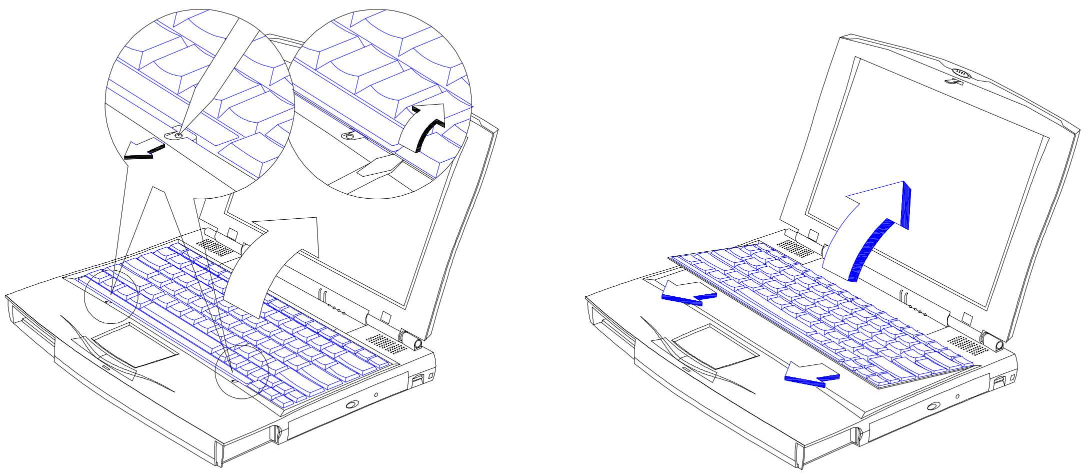


Figure 3-9 Removing the Keyboard

3. Unplug the keyboard connectors (CN3 and CN5) from the keyboard/touchpad board. Set aside the keyboard.

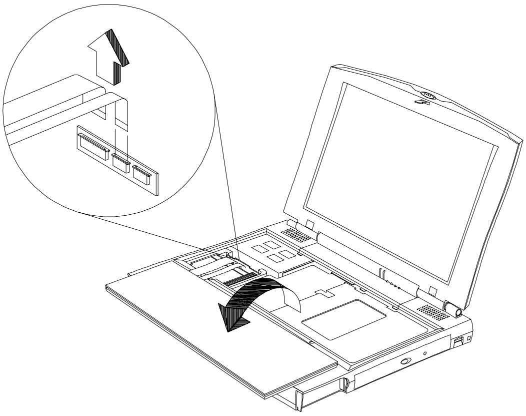


Figure 3-10 Unplugging the Keyboard Connectors

3.6 Disassembling the Inside Frame Assembly

This section discusses how to disassemble the housing, and during its course, includes removing and replacing of certain major components like the internal drive (CD-ROM or floppy), CPU and the main board. Follow these steps:

3.6.1 Removing the Heat Sink Assembly

Follow these steps to remove the heat sink assembly:

1. Pull up and remove the LED cover.

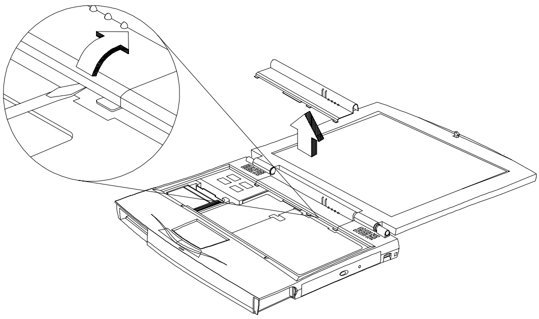


Figure 3-11 Removing the LED Cover

2. Remove the five screws that secure the heat sink assembly to the housing.

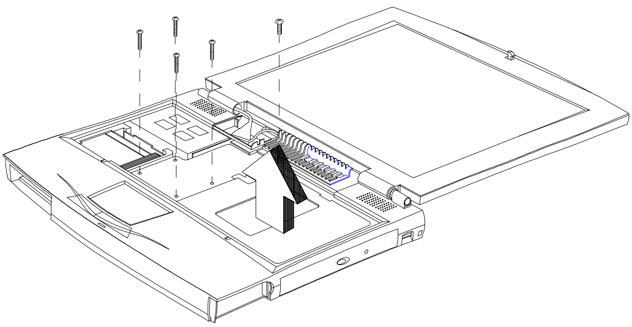


Figure 3-12 Removing the Heat Sink Assembly

3.6.2 Removing the Display

Follow these steps to remove the display:

1. Remove two screws on the bottom and two screws on the rear of the unit.

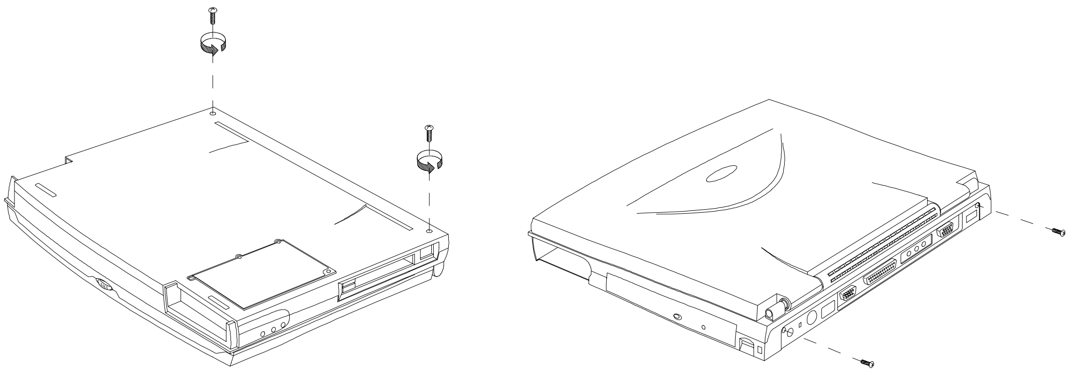


Figure 3-13 Unplugging the Display Cable

2. Open the display then pull up the display cable (CN6) and unplug the inverter cable (CN12).

For DSTN type LCD display:

For TFT type LCD display:

Unscrew the display cable first before pulling out.

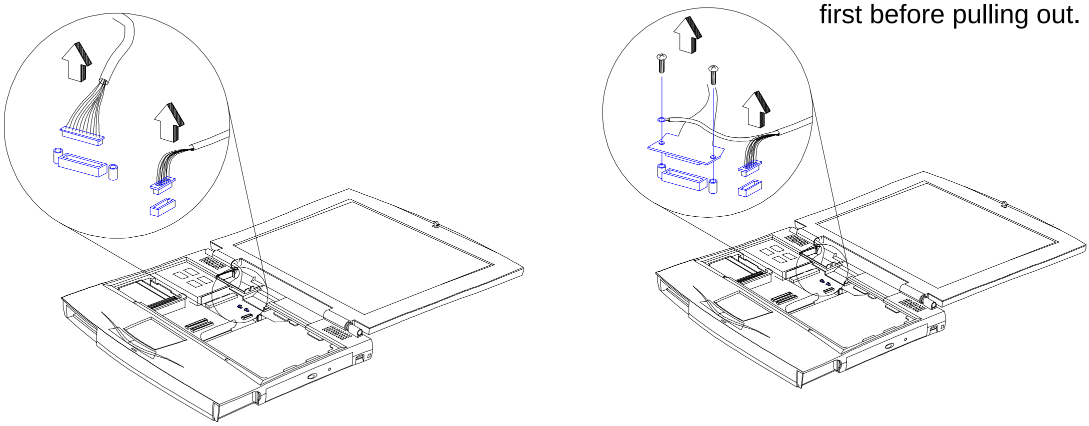


Figure 3-14 Removing the Display Hinge Screws

3. Detach the display from the main unit and set aside.

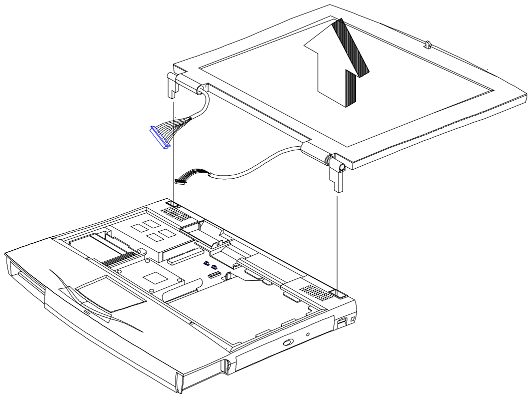


Figure 3-15 Removing the Display Hinge Screws

3.6.3 Removing the Internal Drive

Follow these steps to remove the internal drive:

1. Pull up the FDD/CD module latches.
2. Unplug the two internal drive cables (CN16 for FDD; CN13 and CN16 for CD-ROM).
3. Pull out the internal drive and set it aside.



Ensure the drive cables do not become hooked on the inside frame assembly when removing and reinstalling the drive.

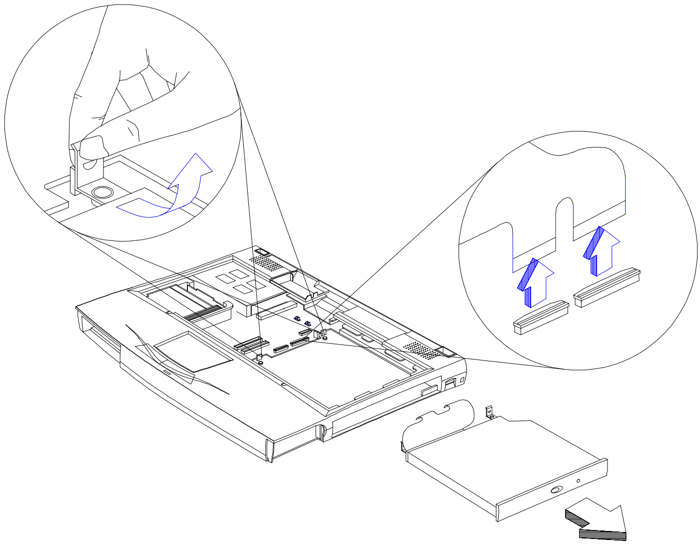


Figure 3-16 Removing the Internal Drive

3.6.4 Replacing the CPU

Gently pull out the CPU heat sink and the CPU board (CN17) from the mainboard.

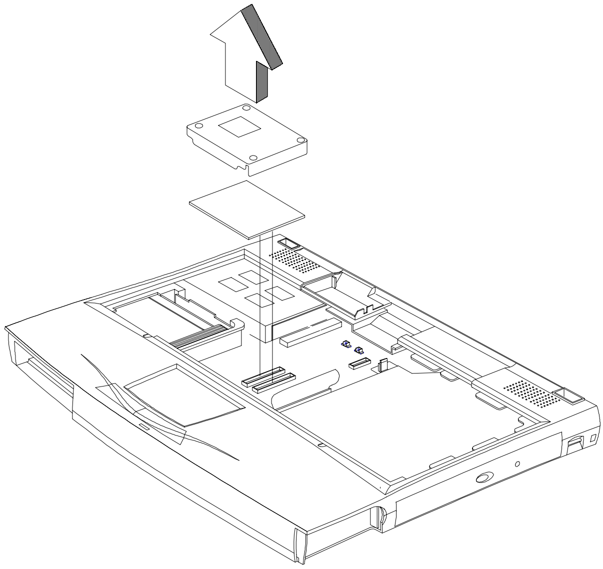


Figure 3-17 Replacing the CPU

Reverse the steps above to insert a replacement CPU.

3.6.5 Detaching the Top Cover

Follow these steps to detach the top cover from the bottom cover:

1. Unplug the touchpad cable (CN6) from the keyboard/touchpad board and speaker cables (CN9 and CN10).

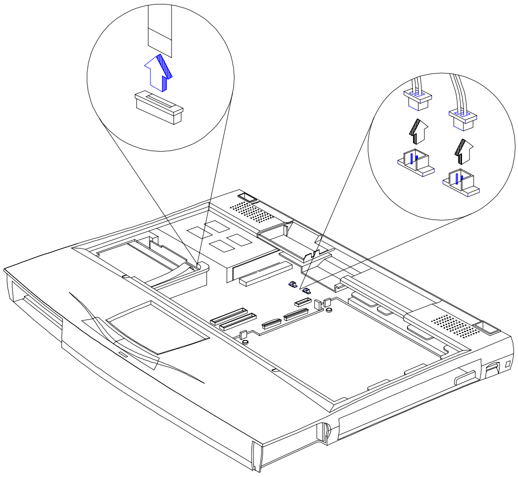


Figure 3-18 Removing Cables

2. Remove the screws found on the lower case (ten total screws, two screws shorter than the rest found on the front corners of the computer).

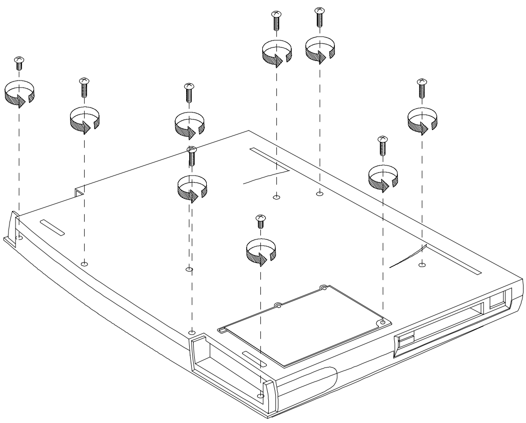


Figure 3-19 Removing Cables

3. Detach the top cover from the bottom cover.

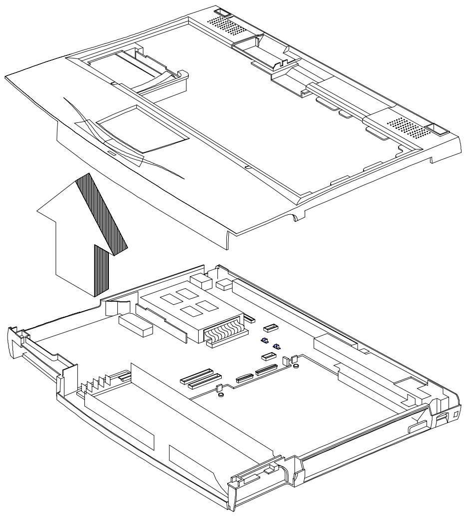


Figure 3-20 Detaching the Top Cover

3.6.6 Removing the Mainboard

Follow these steps to remove the mainboard:

1. Remove the keyboard/touchpad board (CN14). Remove two screws and remove the plate that covers the DC-DC converter board.

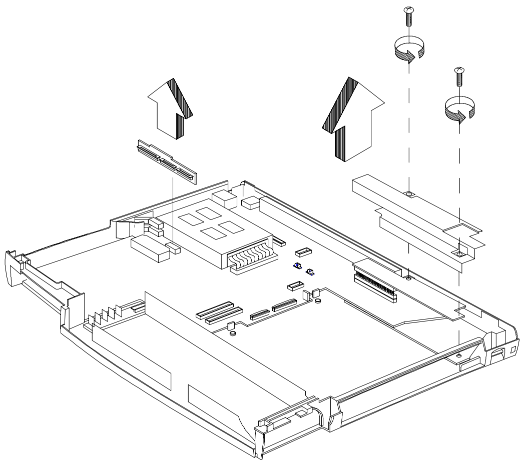


Figure 3-21 Removing the Keyboard/Touchpad Board and DC-DC Converter Board Cover

2. Gently remove the DC-DC converter board (CN7).

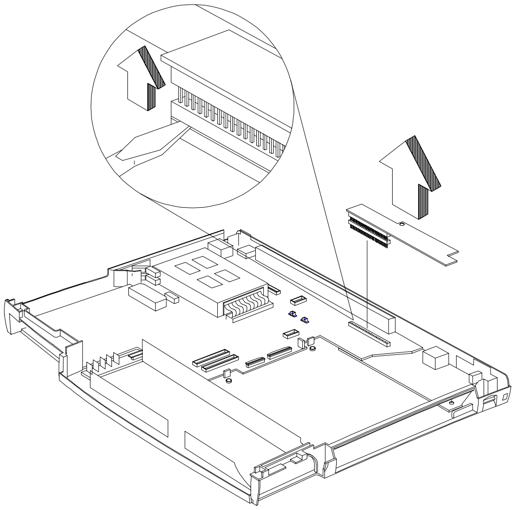


Figure 3-22 Removing the DC-DC Converter Board

3. Remove six (6) screws that secure the motherboard to the base assembly. Then pull up to remove the mainboard.

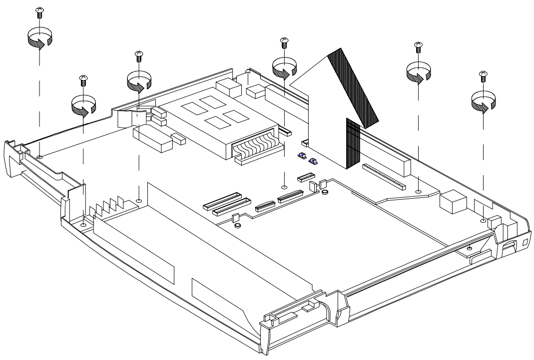


Figure 3-23 Removing the Mainboard

3.6.7 Disassembling the Mainboard

Follow these steps to disassemble the mainboard:

REMOVING THE CHARGER BOARD

Unplug the charger board (containing the power switch, DC-in jack and PS/2 port).

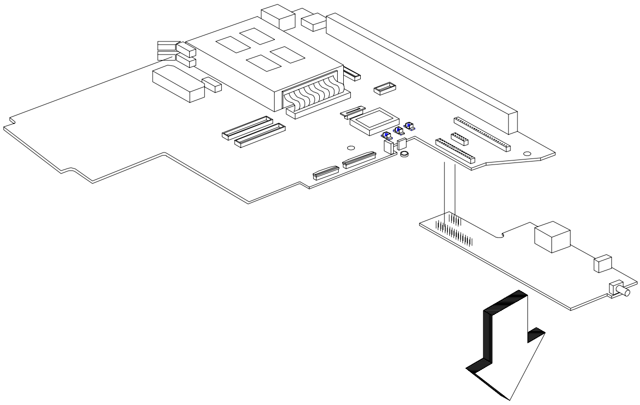


Figure 3-24 Removing the Charger Board

REMOVING THE PCMCIA SOCKETS

The PC Card Connector Module is normally part of the motherboard spare part. The following removal procedure is for reference only. Remove the four (4) screws and then detached the cable connected to the mainbaord (CN11) as shown below.

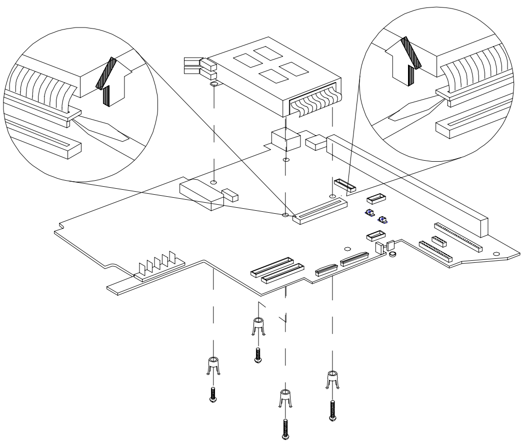


Figure 3-25 Removing the PCMCIA Sockets

3.6.8 Disassembling the Top Cover

The touchpad, speakers, audio board are connected to the top cover. The sections below describe the removal process of these components.

REMOVING THE HARD DISK DRIVE HEAT SINK

Pull up to remove the hard disk drive heat sink from the top cover.

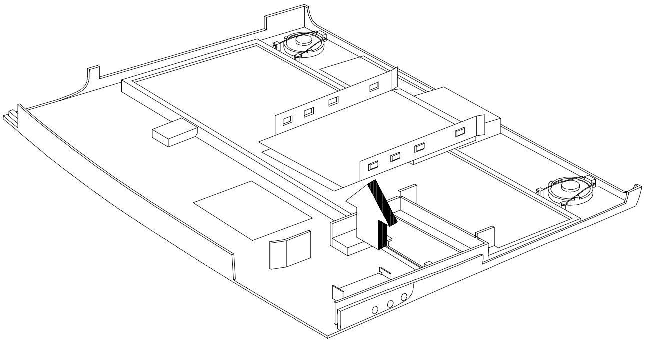


Figure 3-26 Removing the Hard Disk Drive Heat Sink

REMOVING THE TOUCHPAD

1. Remove four screws and lift up the metal plate and touchpad buttons.
2. Unplug the touchpad cable (JP1) and remove the touchpad main sensor and connector unit.

REMOVING THE SPEAKERS

1. Unlock the speaker by pushing outward on its locks.
2. The flip up the wire that holds the speaker in place and remove the speaker.

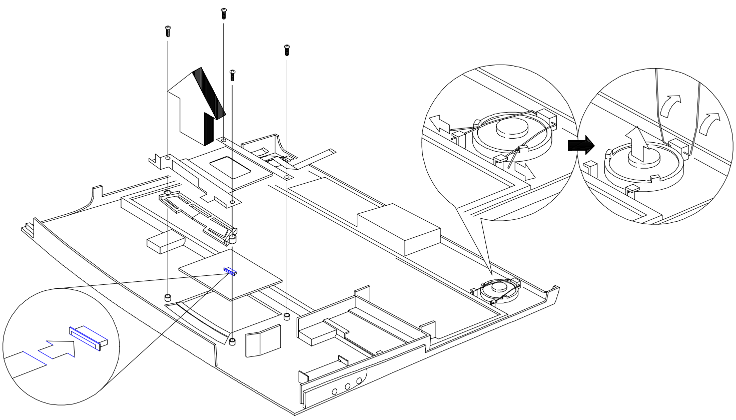


Figure 3-27 Removing the Touchpad and Speakers

3.7 Disassembling the Display

Follow these steps to disassemble the display:

1. Remove the two oval LCD bumpers at the top of the display; use a pointed instrument to remove the two mylar stickers on the bottom of the display.

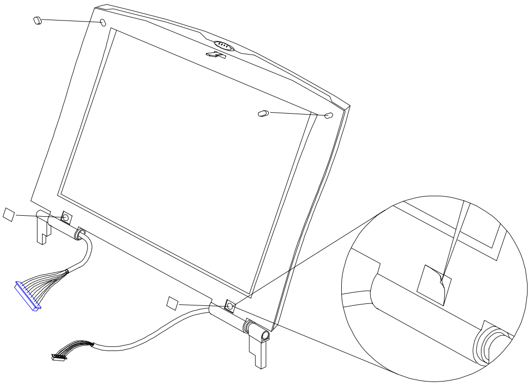


Figure 3-28 Removing the LCD Bumpers

2. Remove four screws on the display bezel.

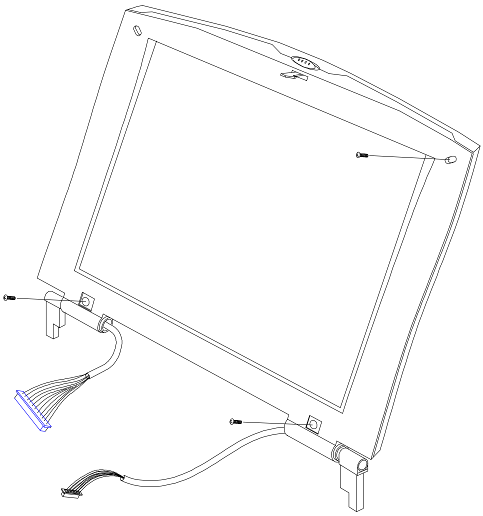


Figure 3-29 Removing the Display Bezel Screws

STN and TFT LCDs use the same bezel but different panels.

3. Pull out and remove the display bezel by first pulling on the inside of the bezel sides and lower bezel area. Then pull up the top bezel area.

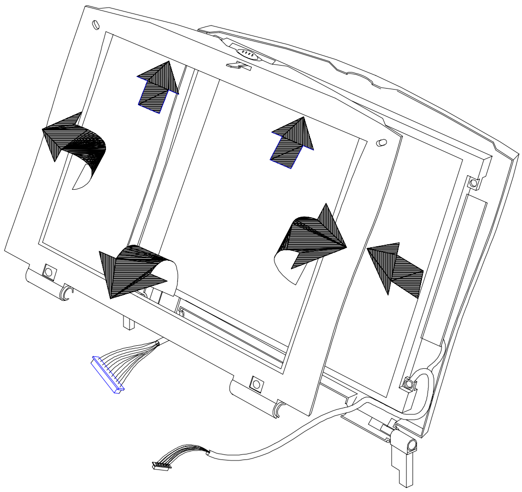


Figure 3-30 Removing the Display Bezel

4. Unplug two connectors and remove the inverter board.

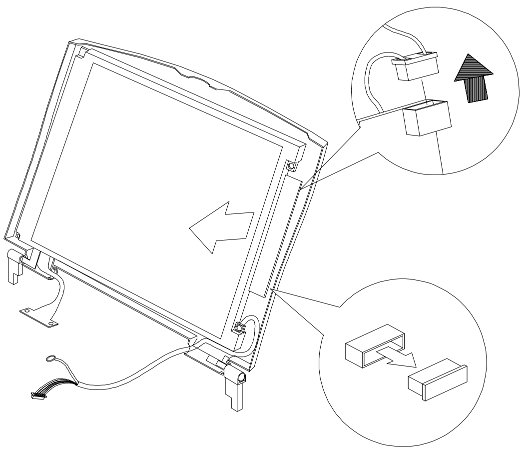


Figure 3-31 Removing the Inverter Board

5. Remove three screws on the four sides of the display panel (one screw holds and grounds the LCD cable). Then tilt the LCD Panel away for the display cover.

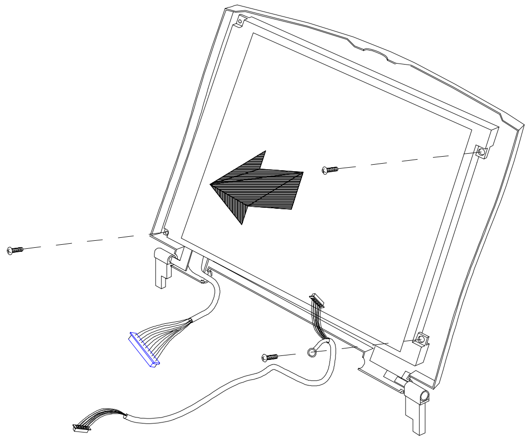


Figure 3-32 Removing the LCD Panel

6. Detached the Display cable from the LCD Panel.

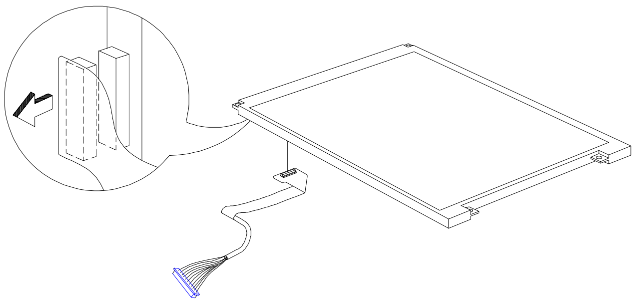


Figure 3-33 Removing the display cable from LCD Panel

Model Number Definition

This appendix shows the model number definition of the notebook.

36 X X

LCD:
D: 12.1” DSTN
T: 12.1” TFT

CPU, Memory, HDD, FDD/CD-ROM, Battery:

5: P55C-166, 16MB, 2.1G, Internal FDD, NiMH Battery
6: P55C-166, 16MB, 2.1G, External FDD, 20x CD-ROM, NiMH Battery
7: Tillamook-200, 32MB, 2.1G, External FDD, 20x CD-ROM, NiMH Battery
8: Tillamook-200, 32MB, 2.1G, Internal FDD, NiMH Battery
9: Tillamook-233, 32MB, 3.2G, External FDD, 20x CD-ROM, NiMH Battery

Compatibility Test Report Excerpt

This paragraph will usually be inserted into the Service Guide in the following weeks. Please check the http://ipg.intranet.acer.com.tw (Customer Services on the website) to find out when this information is available.

BIOS POST Checkpoints

This appendix lists the POST checkpoints of the notebook BIOS.

Table C-1 POST Checkpoint List

Checkpoint	Description
04h	• Dispatch Shutdown Path **Note:** *At the beginning of POST, port 64 bit 2 (8042 system flag) is read to determine whether this POST is caused by a cold or warm boot. If it is a cold boot, a complete POST is performed. If it is a warm boot, the chip initialization and memory test is eliminated from the POST routine.*
08h	• Reset PIE, AIE, UIE **Note:** *These interrupts are disabled in order to avoid any incorrect actions from happening during the POST routine.*
09h	• Initialize m1531
0Ah	• Initialize m1533 • Initialize m7101
10h	• DMA(8237) testing & initialization
14h	• System Timer(8254) testing & initialization
18h	• DRAM refresh cycle testing • Set default SS:SP= 0:400
1Ch	• CMOS shutdown byte test, battery, and check sum **Note:** *Several parts of the POST routine require the system to be in protected mode. When returning to real mode from protected mode, the processor is reset, therefore POST is re-entered. In order to prevent re-initialization of the system, POST reads the shutdown code stored in location 0Fh in CMOS RAM. Then it jumps around the initialization procedure to the appropriate entry point.* *The CMOS shutdown byte verification assures that CMOS 0Fh area is fine to execute POST properly.* • Initialize default CMOS setting if CMOS bad • Initialize RTC time base **Note:** *The RTC has an embedded oscillator that generates a 32.768 KHz frequency. To initialize the RTC time base, turn on this oscillator and set a divisor to 32768 so that the RTC can count time correctly*
1Dh, 1Eh	• DRAM type determination
2Ch	• 128K base memory testing • Set default SS:SP= 0:400 **Note:** *The 128K base memory area is tested for POST execution. The remaining memory area is tested later.*
20h	• KB controller(8041/8042) testing • KB type determination • Write default command byte upon KB type

Table C-1 POST Checkpoint List

Checkpoint	Description
24h	• PIC(8259) testing & initialization
30h	• System Shadow RAM
34h	• DRAM sizing
3Ch	• Initialize interrupt vectors
4Bh	• Identify CPU brand and type
35h	• PCI pass 0
40h	• Assign I/O if device request
41h	• Assign Memory if device requested
44h	• Assign IRQ if device request
45h	• Enable command byte if device is OK
50h	• Initialize Video display
52h	• Download keyboard matrix
4Ch	• ChipUp initialization for CPU clock checking
54h	• Process VGA shadow region
58h	• Set POST screen mode(Graphic or Text) • Display Acer(or OEM) logo if necessary • Display Acer copyright message if necessary • Display BIOS serial number
59h	• Hook int vector 1ch for POST quiet boot
5Ch	• Memory testing
5Ah	• SMRAM test and SMI handler initialization
4Eh	• Audio initialization
60h	• External Cache sizing • External Cache testing(SRAM & Controller) • Enable internal cache if necessary • Enable external cache if necessary
64h	• Reset KB device • Check KB status ***Note:*** *The keyboard LEDs should flash once.*
7Ch	• Reset pointing device • Check pointing device
70h	• Parallel port testing
74h	• Serial port testing
78h	• Math Coprocessor testing
80h	• Set security status
84h	• KB device initialization • Enable KB device

Table C-1 POST Checkpoint List

Checkpoint	Description
6Ch	• FDD testing & parameter table setup ***Note:*** *The FDD LED should flash once and its head should be positioned*
88h	• HDD testing & parameter table setup
89h	• Get CPU MUX ***Note:*** *This routine is to identify the user-set CPU frequency, not CPU-required frequency*
90h	• Display POST status if necessary
93h	• Rehook int1c for quiet boot
94h	• Initialize I/O ROM
A4h	• Initialize security feature
A8h	• Setup SMI parameters
A0h	• Initialize Timer counter for DOS use
ACh	• Enable NMI • Enable parity checking • Set video mode
B0h	• Power-on password checking • Display configuration table • Clear memory buffer used for POST • Select boot device

Silk Screen

1.1 CPU Board Layout

For the mainboard layout, please refer to the next page. The following table is a reference when mounting[1] the CPU.

CPU Mounting Reference Table

			Volt.		Ext Freq		Ratio											
CPU	Volt	Freq	R4	R6	R8	R11	R20	R22	R24	R26	RX14	RY1	RX6	RX9	RX11	RX12	UX2	UX3
P55C-133MHz	2.5V	133=66x2	V	X	V	X	V	X	X	V	V	X	V	X	X	X	X	X
P55C-150MHz	2.5V	150=60x2.5	V	X	V	V	X	X	V	V	V	X	V	X	X	X	X	X
P55C-166MHz	2.5V	166=66x2.5	V	X	V	X	X	X	V	V	V	X	V	X	X	X	X	X
TLMK-200MHz	1.8V	200=66x3	X	X	V	X	X	V	V	X	V	X	X	V	V	V	V	V
TLMK-233MHz	1.8V	233=66x3.5	X	X	V	X	V	V	X	X	V	X	X	V	V	V	V	V
TLMK-266MHz	2.0V	266=66x4	X	V	V	X	X	X	V	V	X	V	X	V	V	V	V	V

PCB No. 96532-SA CPU Board Layout (Top)

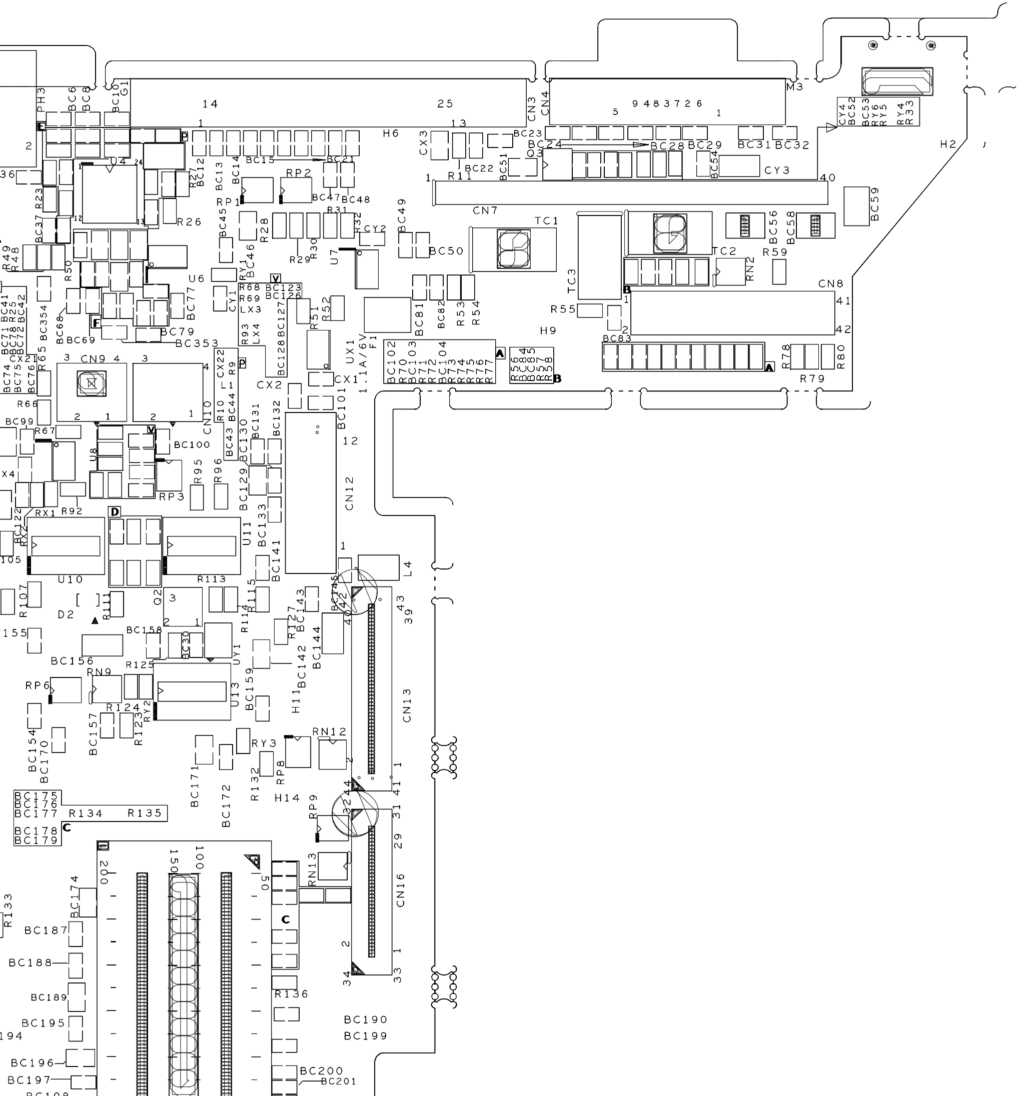
1 V: mount on; X: not mount on

PCB No. 96532-SA CPU Board Layout (Bottom)

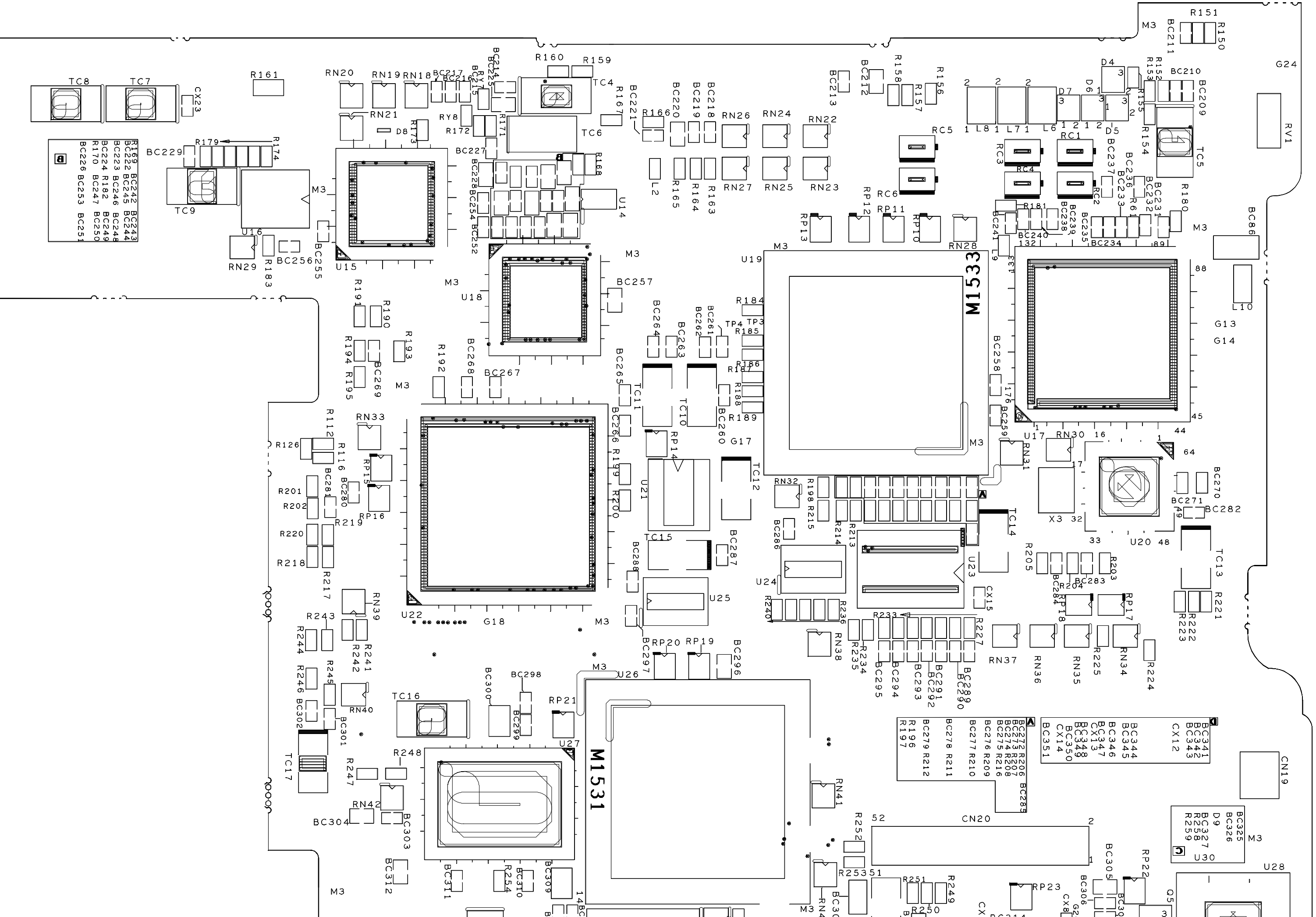
1.2 Keyboard/Touchpad Board

PCB No. 97349-1 Keyboard/Touchpad Board (Top View)

PCB No. 97349-1 Keyboard/Touchpad Board (Bottom View)



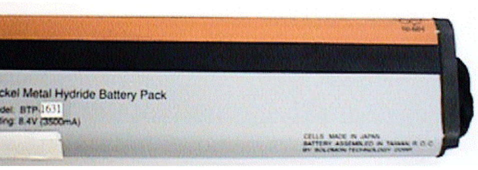
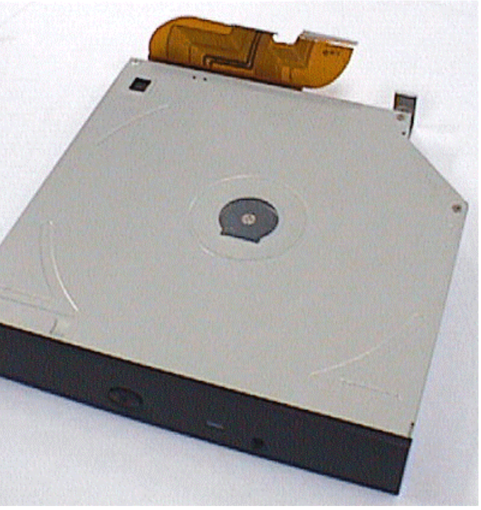
CN3
CN4
M3
H6
H2
CN7
TC1
TC2
TC3
CN8
H9
CN9
CN10
CN12
CN13
CN16
U6
U7
U8
U10
U11
U13
UX1
1.1A/6V
F1
CX1
CX2
CX3
CY1
CY2
CY3
BC50
BC59
BC56
BC58
BC83
R55
R59
RN2
R78
R79
R80
RP1
RP2
RP3
RP6
RP8
RP9
RN9
RN12
RN13
R26
R28
R29
R30
R31
R51
R52
R53
R54
R92
R95
R96
R113
R124
R125
R132
R134
R135
R136
BC15
BC21
BC22
BC23
BC24
BC28
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BC32
BC47
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BC49
BC77
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BC353
BC100
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BC171
BC172
BC175
BC176
BC177
BC178
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H14
L4
D2
Q2
RY3

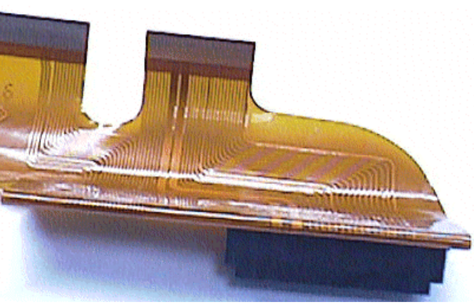
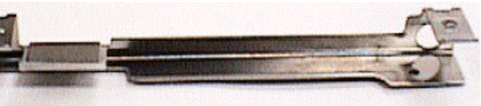


M1533
M1531
U15
U16
U17
U18
U19
U20
U21
U22
U23
U24
U25
U26
U27
U28
U30
CN19
CN20
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G13
G14
G17
G18
X3

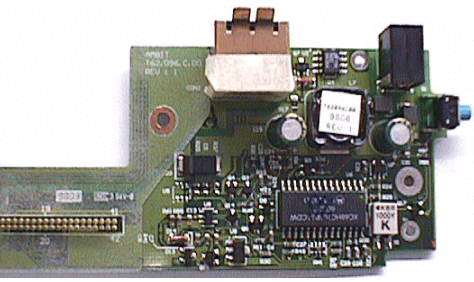
Acer 365/366D/366T Spare Parts List

(P/N 91.40B01.XXX)

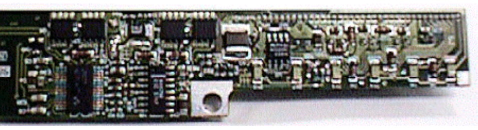
Picture	LEVEL	Description	Acer Part No	COMMENT/LOCATION
		ADAPTER		
	1	ADT 100-240V PA-1480-19AC 355	25.10068.001	
		BATTERY PACK		
	1	ASSY BTY PACK BTP-1631 AN365	60.40B10.001	
		CD-ROM		
	1	365 CD-ROM	6M.40B08.001	

	2	C.A 70P FPC 60MM CD-ROM 390	50.43A06.002	(S02,S05) (366D,366T) (Int.)
	2	ASSY CD-ROM HOLDER 390	60.43A16.002	(S02,S05) (366D,366T)

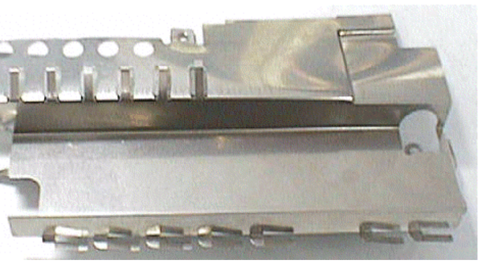
CHARGER

	1	CHARGER T62.096.C.00 365	19.21030.241	

CONVERTER

	1	CONVER DC/DC T62.095.C.00 365	19.21030.231	

DC-DC COVER

	1	ASSY DC-DC BRACKET AN365	60.40B04.001	

MIDEL COVER

	1	ASSY MIDLE COVER 050 390	60.43A08.001	

HDD COVER



	1	ASSY HDD COVER	60.43A17.002

DIMM COVER



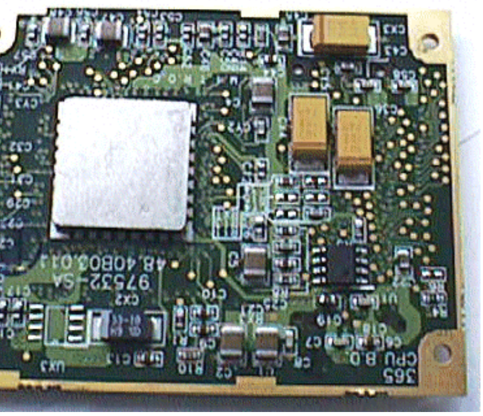
	1	ASSY DIMM COVER AN390	60.43A20.002

BATTERY COVER



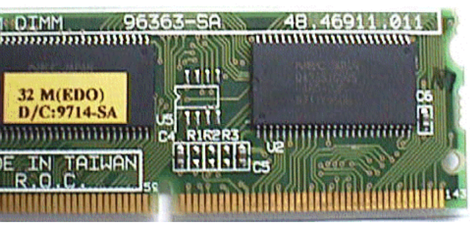
	1	ASSY BATTERY COVER	60.43A21.003

CPU BOARD



	1	365 CPU BOARD P55C-166	55.40B02.031

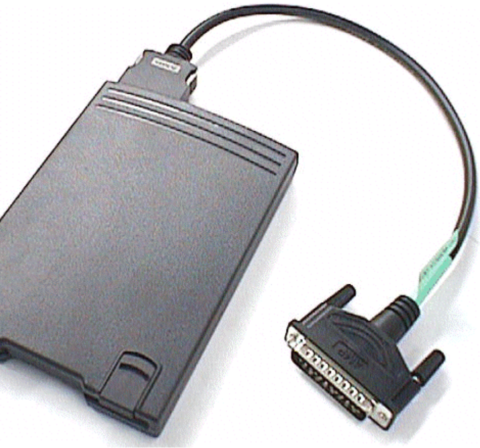
DIMM



	1	DIMM EDO 32MB 3.3V 60NS 4K	55.46804.021

FDD

1	365 FDD MODULE (Int.)	6M.40B03.001	



1	365 FDD MODULE (Ext).	6M.40B07.001	



2	C.A 25/26P 320MM FDD C440329-1	50.40B05.001	(S02,S05) (366D,366T) (Ext.)
2	C.A 30P FPC 60MM FDD 390	50.43A05.001	
2	ASSY FDD 2MB MF355H -322MR 3M0D	60.40B11.001	(S02,S05) (366D,366T)

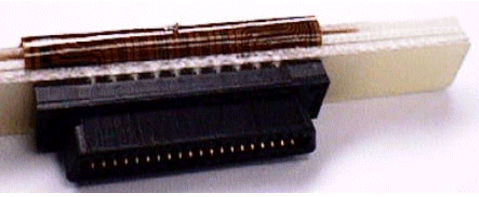
FOOT PACK

1	ASSY FOOT	6M.40B01.001	47.45001.001+47.46902.001+ 01.001

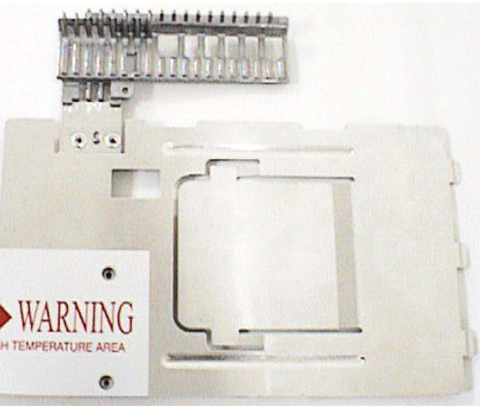
HDD MODULE



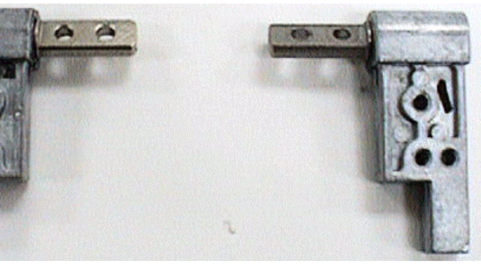
1	365 HDD MODULE HITACHI 2GB	6M.40B02.001	56.02759.011

	1	365 HDD MODULE IBM 2GB	6M.40B02.011	56.02756.051
	1	365 HDD MODULE HITACHI 3GB	6M.40B02.021	56.02973.011
	2	C.A 44P FPC HDD 390	50.43A08.001	

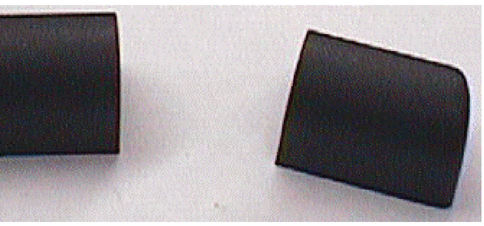
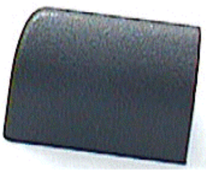
HEAT SINK

	1	ASSY U HEAT SINK AN365	60.40B05.001	

HINGE PACK

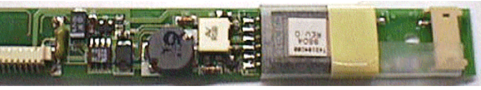
	1	ASSY HINGE	6M.40B11.001	34.43B07.001+34.43A04.001

HINGE COVER

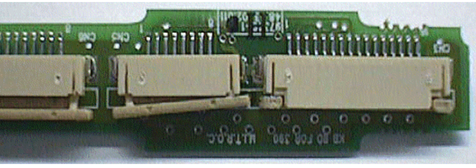
	1	365 COVER HINGE	6M.40B05.001	
	2	COVER (L) HINGE (TOOLING) 390	42.43A03.001	

	2	COVER (R) HINGE (TOOLING) 390	42.43A04.001

INVERTER

	1	INVERTER T62.104.C.00 390/355	19.21030.301

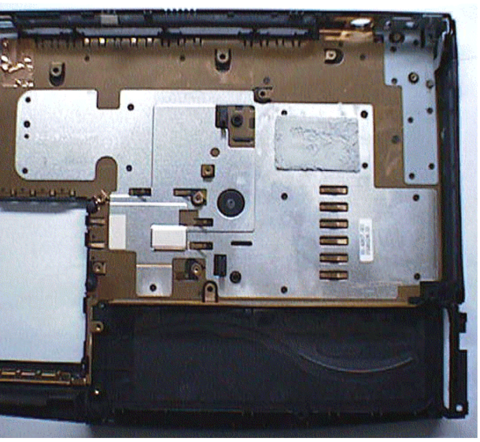
KEYBOARD BOARD

	1	390 KEYBOARD BOARD	55.43A04.001

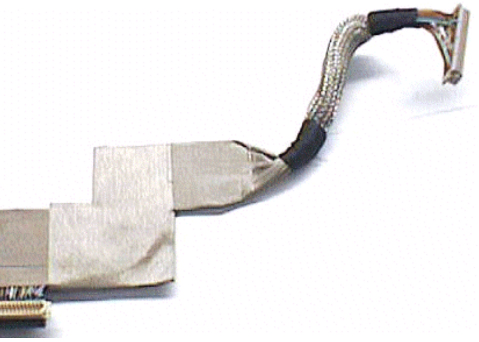
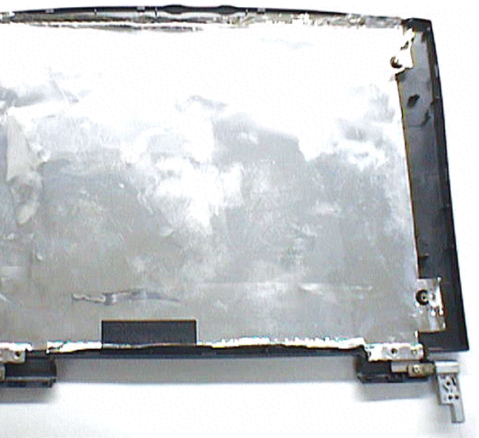
KEYBOARD

	1	US KB-84 KEY KAS1901-0161R	90.46907.001

LOWER CASE

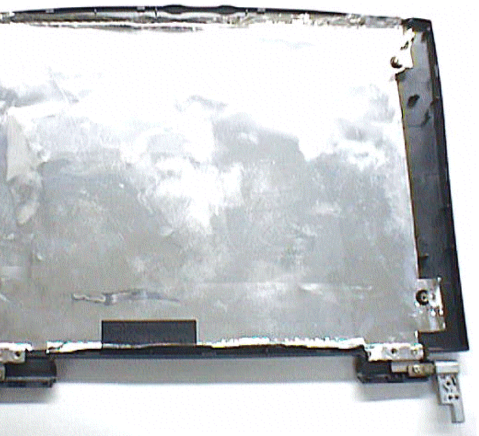
	1	ASSY L CASE AN365	60.40B07.001

LCD MODULE 12.1" (DSTN)

	1	365 LCD MODULE DSTN 12.1"	6M.40B01.001	56.40B01.031
	2	LCD 12.1 DSTN LM-JK53-22NFR	56.0743A.011	
	2	C.A LCD INVERTER AN365	50.40B02.001	(TFT.DSTN)
	2	C.A LCD WIRE(SAYNO) AN365	50.40B03.001	(DSTN)
	2	ASSY LCD PNL SANYO AN365	60.40B02.021	



	2	ASSY LCD BZL AN365	60.40B03.021	



	2	ASSY LCD PNL HIT-TX31D21 AN365	60.40B02.031	(S05) (366T)

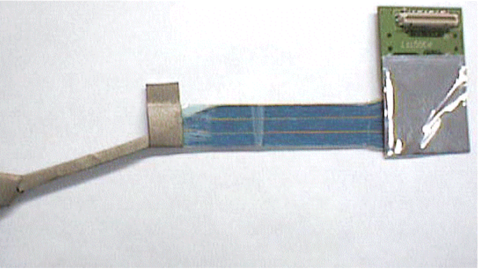
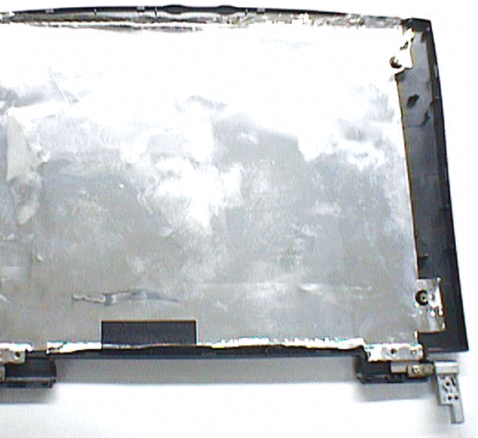
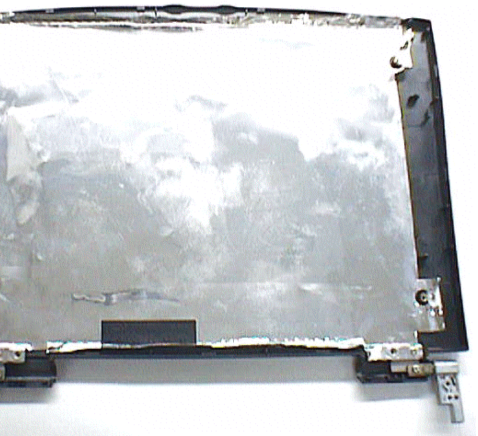
LCD MODULE 12.1" (TFT)



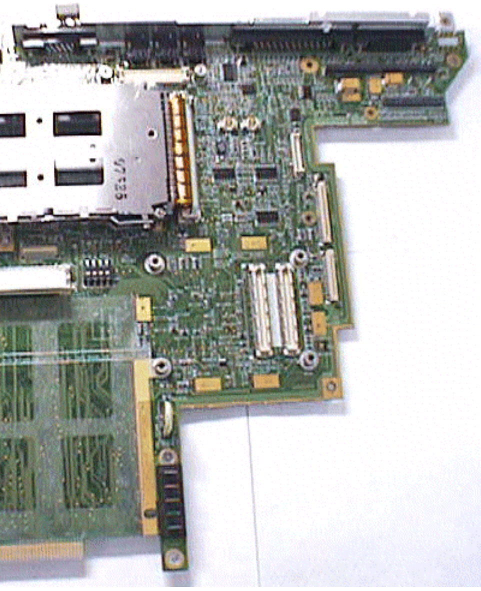
	1	365 LCD MODULE TFT 12.1"	6M.40B01.021	56.40B01.021



	2	LCM TX31D21 12.1" TFT SVGA HIT	56.07468.021	(S05) (366D)

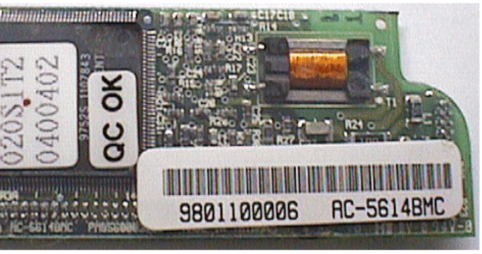
	2	C.A LCD INVERTER AN365	50.40B02.001	(TFT.DSTN)
	2	C.A LCD COAXICAL HIT -TX31D21	50.40B04.031	(S05) (366T) (TFT)
	2	ASSY LCD PNL SANYO AN365	60.40B02.021	
	2	ASSY LCD BZL AN365	60.40B03.021	
	2	ASSY LCD PNL HIT-TX31D21 AN365	60.40B02.031	(S05) (366T)

MAINBOARD



1	365 MAIN BOARD	55.40B01.001	

MODEM



1	MODEM 56K CSI AC-5614BMC 700	54.09011.091	

PLATE NAME



1	PLATE NAME(LOGO) PC AN390	40.43A02.001	

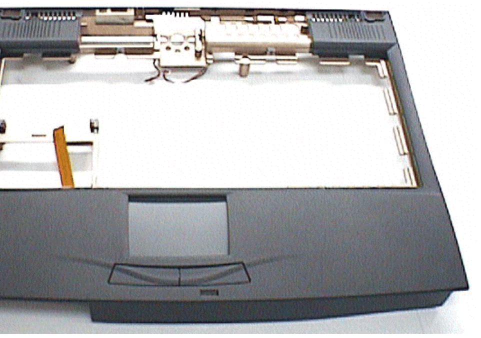
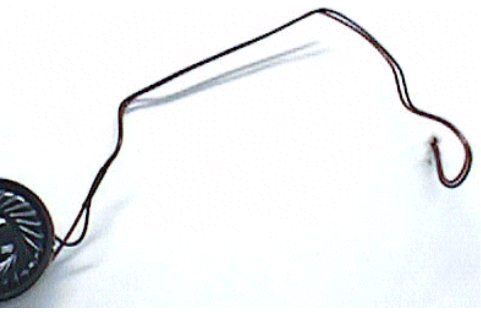
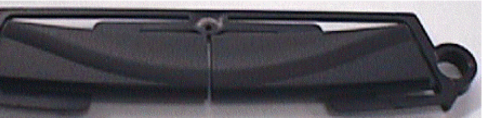
POWER CORD

1	CORD SPT-2#18*2C 7A125V1830MM	27.01618.001	US
1	CORD VCTF 3C 7A125V JAPAN	27.03518.021	JPN
1	CORD 1203VVH2-F #18*2C 2.5A 250A	27.01218.021	ERU

SCREW PACK

1	365 SCREW	6M.40B04.001	

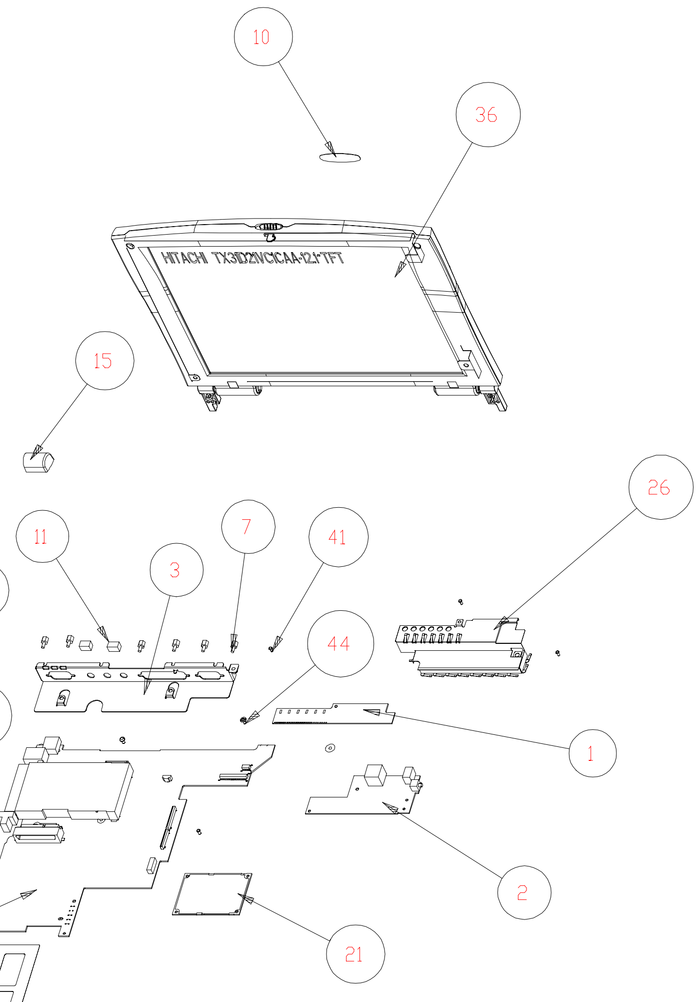
UPPER CASE

	1	365 U CASE MODULE	6M.40B06.001
	2	SPK 0.5W 78DB ZK-2808C 140M	23.40031.011
	2	KNOB TOUCH PAD (TOOLING) 390	42.43A10.001
	2	TOUCH PAD LOGITEC/TP3 ULTRA-THIN	56.1740B.001

LEVEL 1-1 : Stands for Field Replaceable Units(FRU) and Customer Replaceable Units (CRU) for system level1 service repair use.
LEVEL 1-2 : Stands for subassemblies of FRUs and CRUs which are component level of service repair use.
LEVEL 2 : Stands for consuming parts which are easily demaged with replacement action taken.

Explored View Diagram

3	4	5	6	7	8



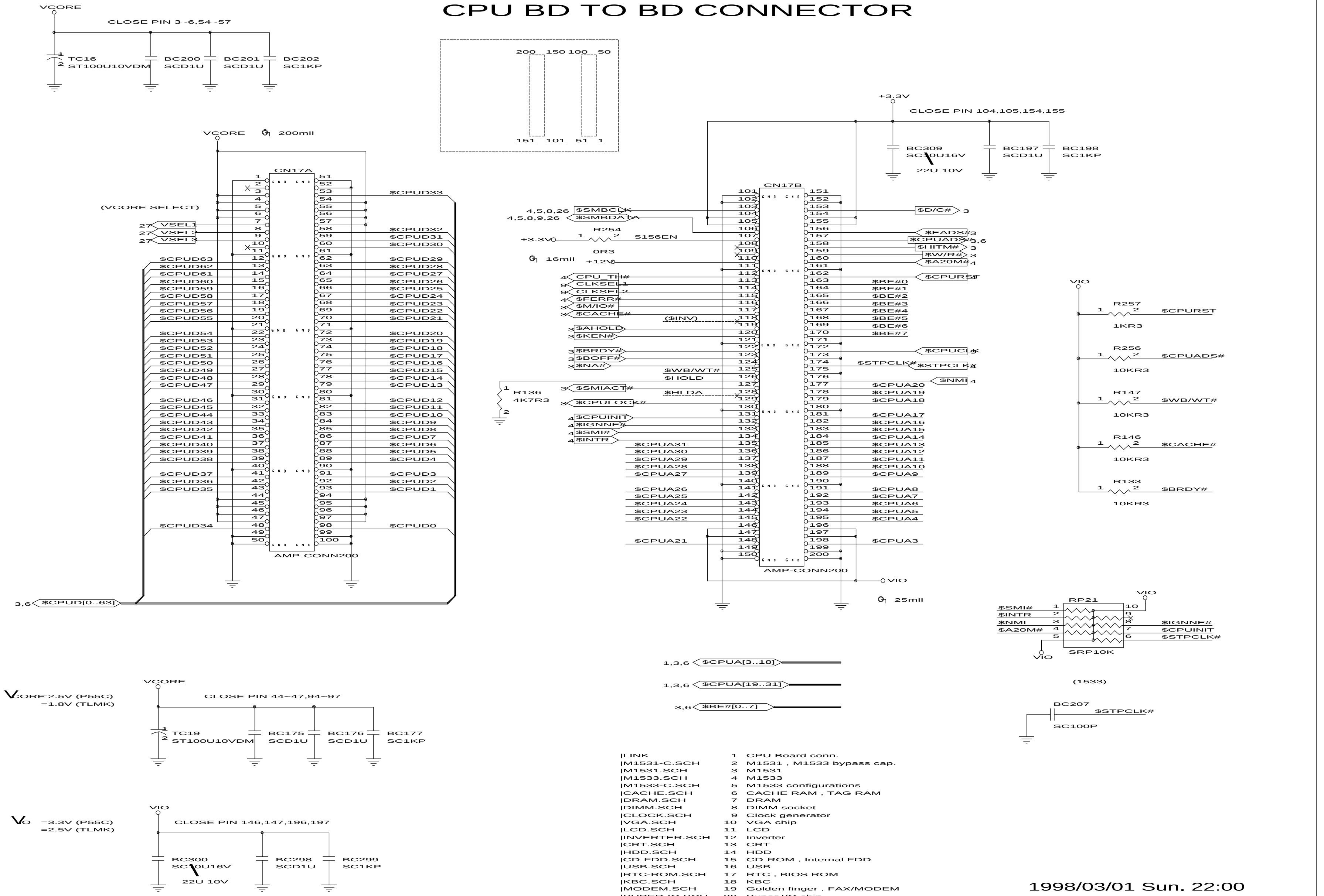
No.	PART_No.	DESCRIPTION	Q'ty	Rev.	REMARK
1	19.21030.231	CONVERTER DC-DC T62.095 365	1	1	
2	19.21030.241	CHARGER T62.096 365	1	1	
3	33.40B03.001	BRACKET IO AL N/A 365	1	1	
4	33.40B05.001	TCP BRACKET AN365	1	1	
5	33.43A08.001	HOLDER HDD CONN AL N/A 390	1	1	
6	33.43A09.001	BRACKET HDD(TOOLING) 390	1	1	
7	34.00015.081	SCW HEX NYL I#R-40/0#4-40 L5.5	6	1	
8	40.43A01.021	MYLAR MB FOR HDD PC N/A 390	1	1	
9	40.43A01.131	MYLAR FOR T/P BOARD	1	1	
10	40.43A02.001	PLATE NAME(LOGO) PC AN390	1	1	
11	42.00097.161	GASKET FOR I/O BRK	2	1	
12	42.00097.171	GASKET FOR RJ-11	1	1	
13	42.40B10.001	GASKET ESD 10*8*10	1	1	
14	42.43A03.001	COVER(L) HINGE(TOOLING) 390	1	1	
15	42.43A04.001	COVER(R) HINGE(TOOLING) 390	1	1	
16	42.43A10.001	KNOB TOUCH PAD(TOOLING) 390	1	1	
17	50.43A03.001	C.A 8P FPC TOUCHPAD 390	1	1	
18	50.43A08.001	C.A 44P FPC HDD 390	1	1	
19	54.09011.091	MODEM CARD 56K CSI AC-5614BMC	1	1	
20	55.40B01.001	365 MAIN BOARD	1	1	
21	55.40B02.011	365 CPU BOARD P55C/166	1	1	
22	55.43A04.001	390 KEYBOARD BOARD	1	1	
23	56.02756.001	HDD 2.1GB IBM IDE	1	1	
24	56.17408.001	TOUCHPA LOGITEC 050	1	1	
25	60.40B01.001	ASSY BATY PACK 365	1	1	
26	60.40B04.001	ASSY EMI PLT DC-DC 365	1	1	
27	60.40B05.001	ASSY UPPER HEAT SINK 365	1	1	
28	60.40B06.001	ASSY UPPER CASE 050 365	1	1	
29	60.40B07.001	ASSY LOWER CASE 050 365	1	1	
30	60.43A05.001	ASSY MIDDLE COVER 050 390	1	2	
31	60.43A10.022	ASSY T/P BRACKET	1	1	
32	60.43A11.001	ASSY HDD PACKING BRACKET 390	1	1	
33	60.43A17.001	ASSY HDD COVER 390	1	2	
34	60.43A20.002	ASSY DIMM COVER	1	1	
35	60.43A21.001	ASSY BATT COVER	1	1	
36	65.40B01.021	LCD ASSY MODULE(HIT TFT) 365	1	1	
37	65.40B02.001	ASSY CD ROM MOUDLE 050 365	1		
38	86.1A522.200	SCREW MACH PAN M2*20L	4		
39	86.1A353.4R0	SCREW MACH PAN M2.5*4L B-Zn	4		

A
B
C

Schematics

This appendix shows the schematic diagrams of the notebook.

CPU BD TO BD CONNECTOR



[LINK	1	CPU Board conn.
[M1531-C.SCH	2	M1531 , M1533 bypass cap.
[M1531.SCH	3	M1531
[M1533.SCH	4	M1533
[M1533-C.SCH	5	M1533 configurations
[CACHE.SCH	6	CACHE RAM , TAG RAM
[DRAM.SCH	7	DRAM
[DIMM.SCH	8	DIMM socket
[CLOCK.SCH	9	Clock generator
[VGA.SCH	10	VGA chip
[LCD.SCH	11	LCD
[INVERTER.SCH	12	Inverter
[CRT.SCH	13	CRT
[HDD.SCH	14	HDD
[CD-FDD.SCH	15	CD-ROM , Internal FDD
[USB.SCH	16	USB
[RTC-ROM.SCH	17	RTC , BIOS ROM
[KBC.SCH	18	KBC
[MODEM.SCH	19	Golden finger , FAX/MODEM
[SUPER-IO.SCH	20	Super I/O chip
[SERIAL.SCH	21	RS-232 , serial port COM1
[PARALLEL.SCH	22	Parallel port LPT1
[AUDIO.SCH	23	Audio chip
[OP-AMP.SCH	24	Audio OP amp.
[PCMCIA.SCH	25	PCMCIA/CARDBUS controller
[SOCKET.SCH	26	PCMCIA power IC , CARD socket
[POWER.SCH	27	Charger , DC/DC , BAT Conn.
[HOLE.SCH	28	Skew holes

1998/03/01 Sun. 22:00

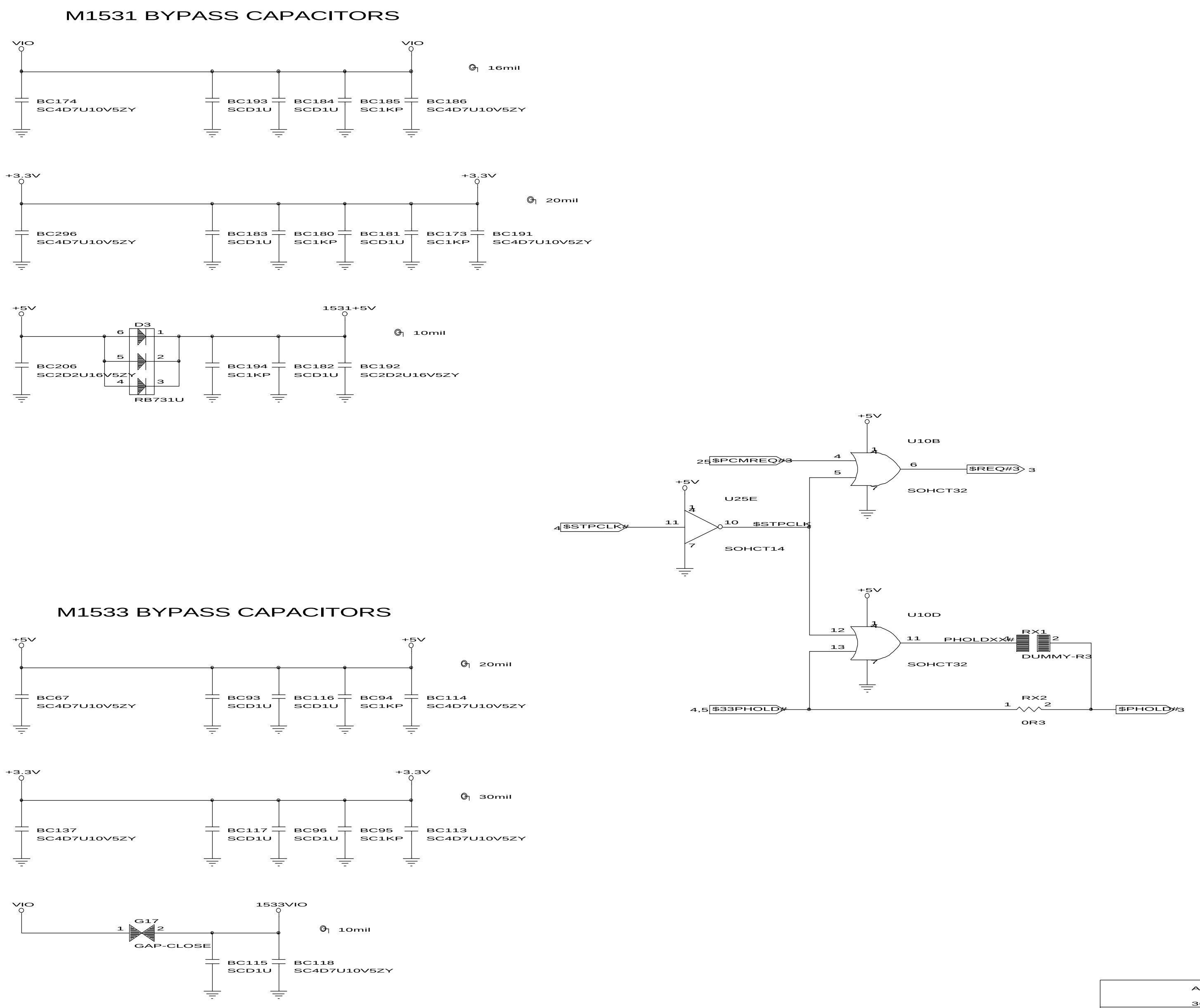
Acer Incorporated

365

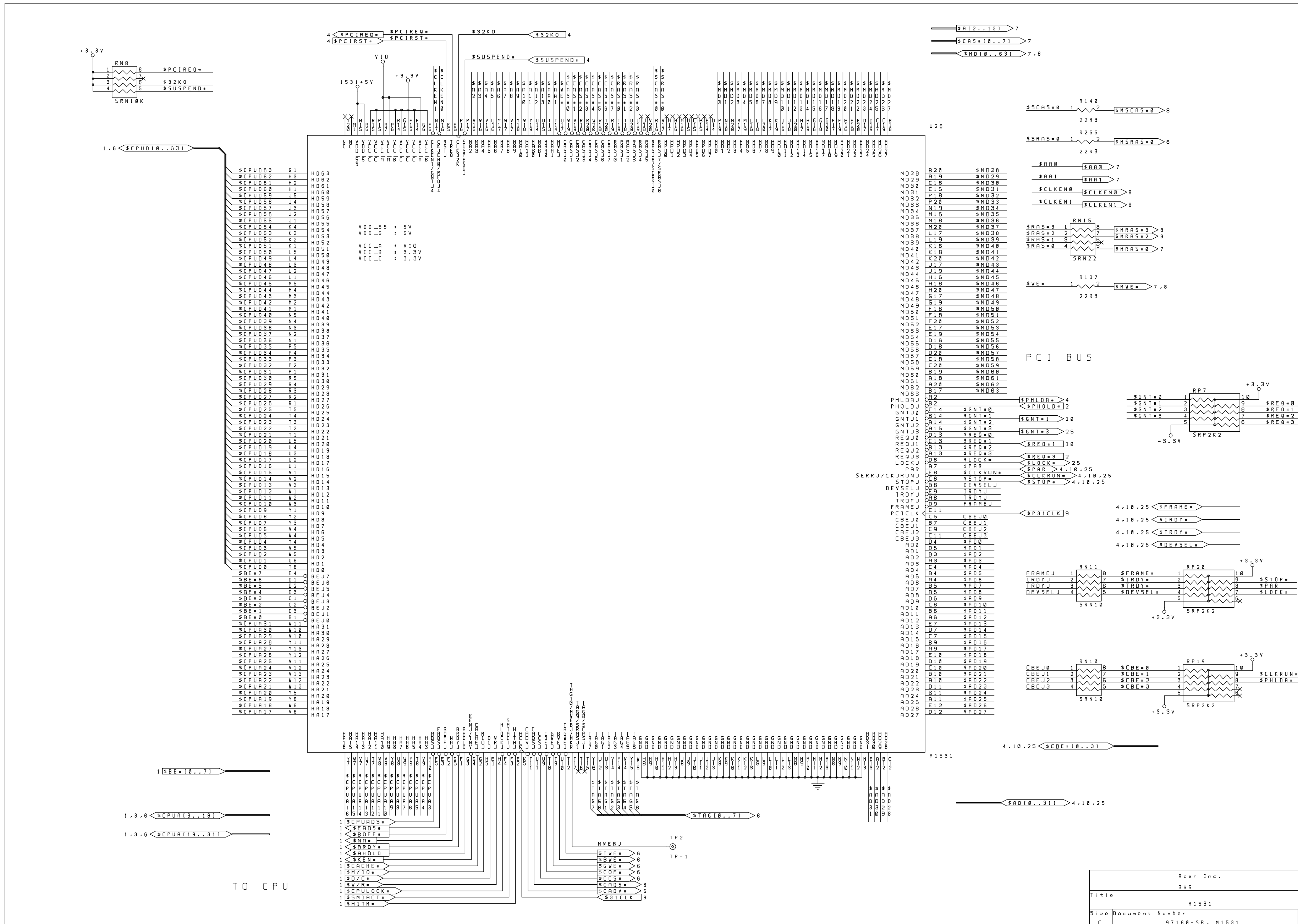
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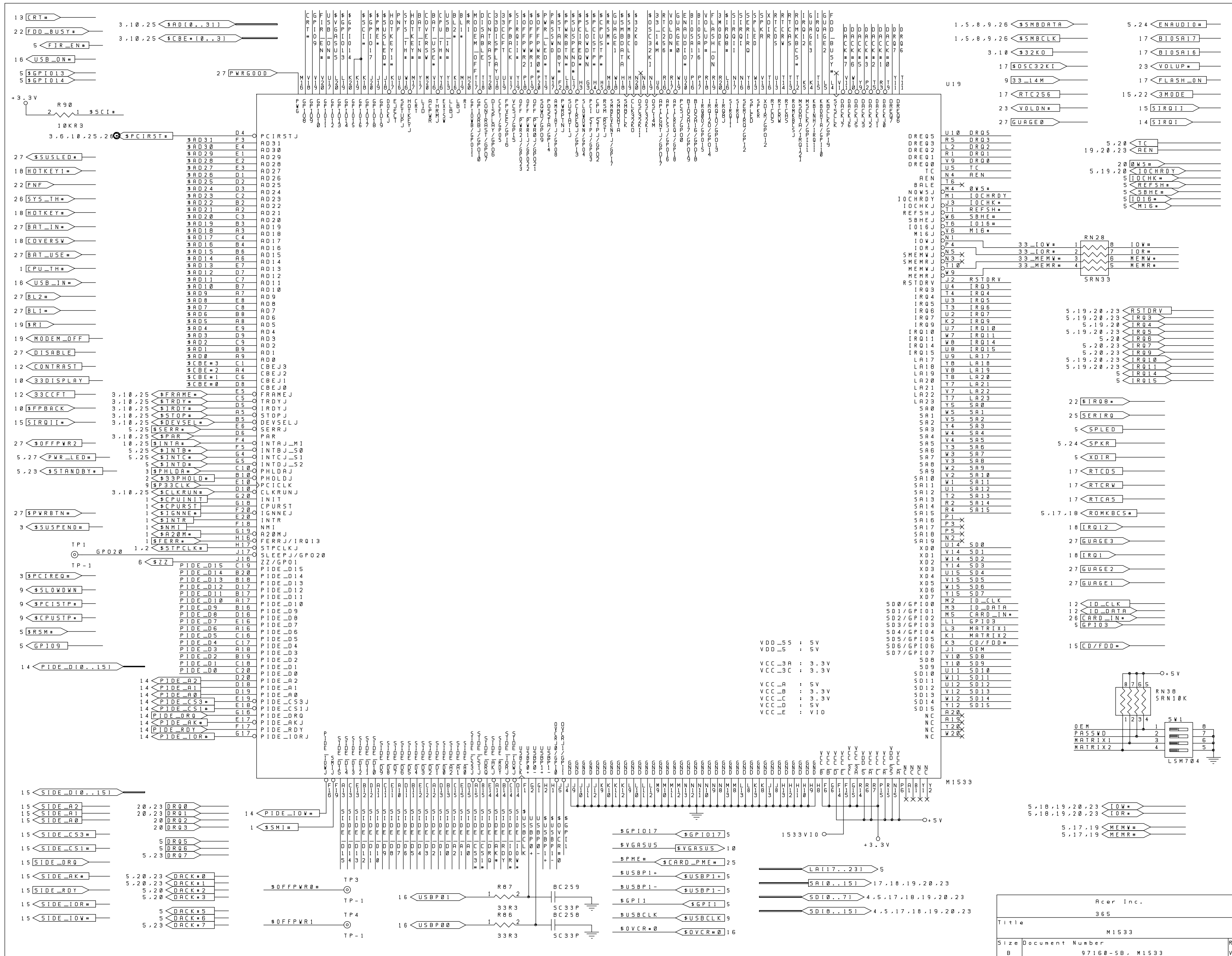
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B	97160-1, 365	V15

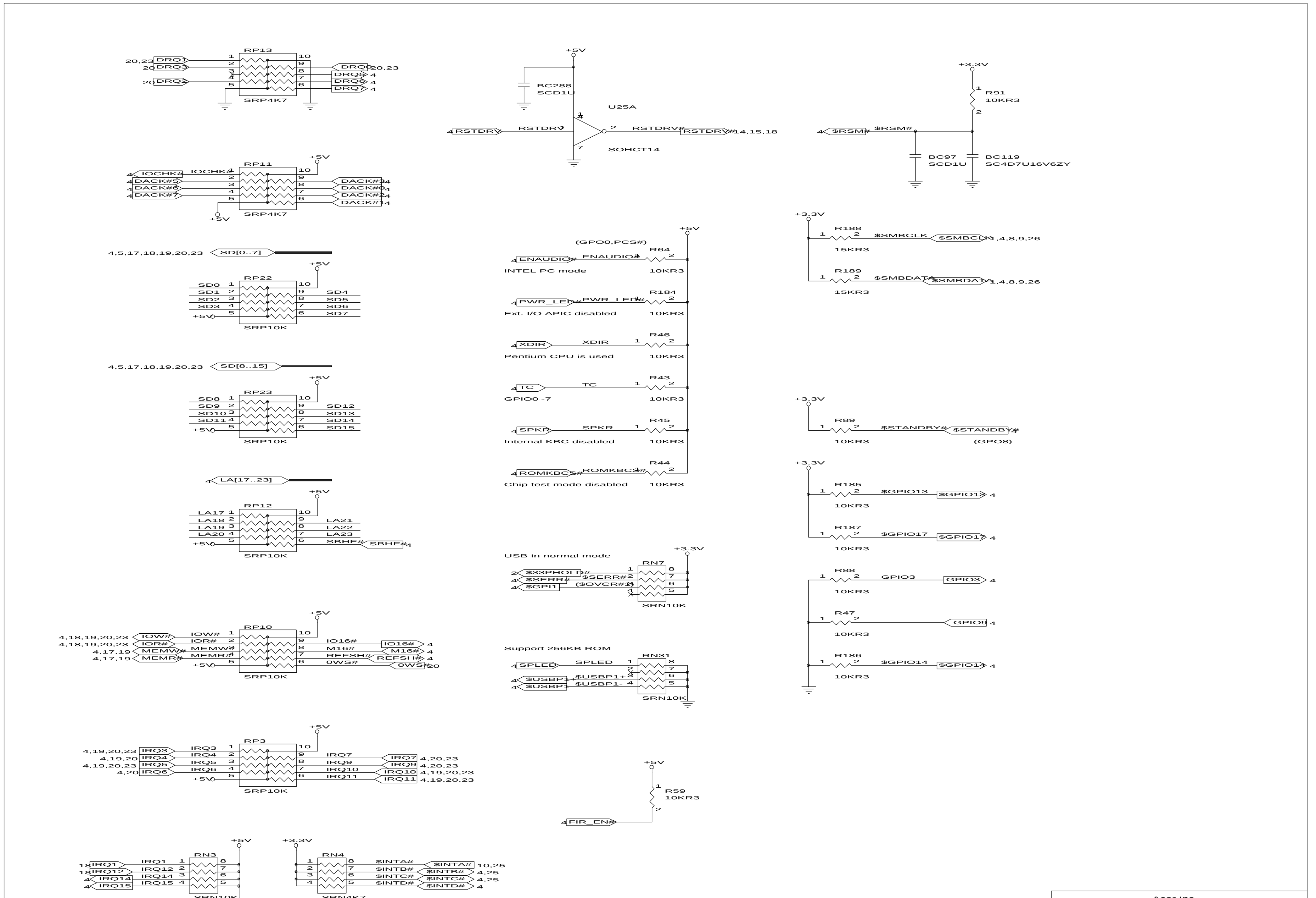
Date: March 1, 1998 Sheet 1 of 28



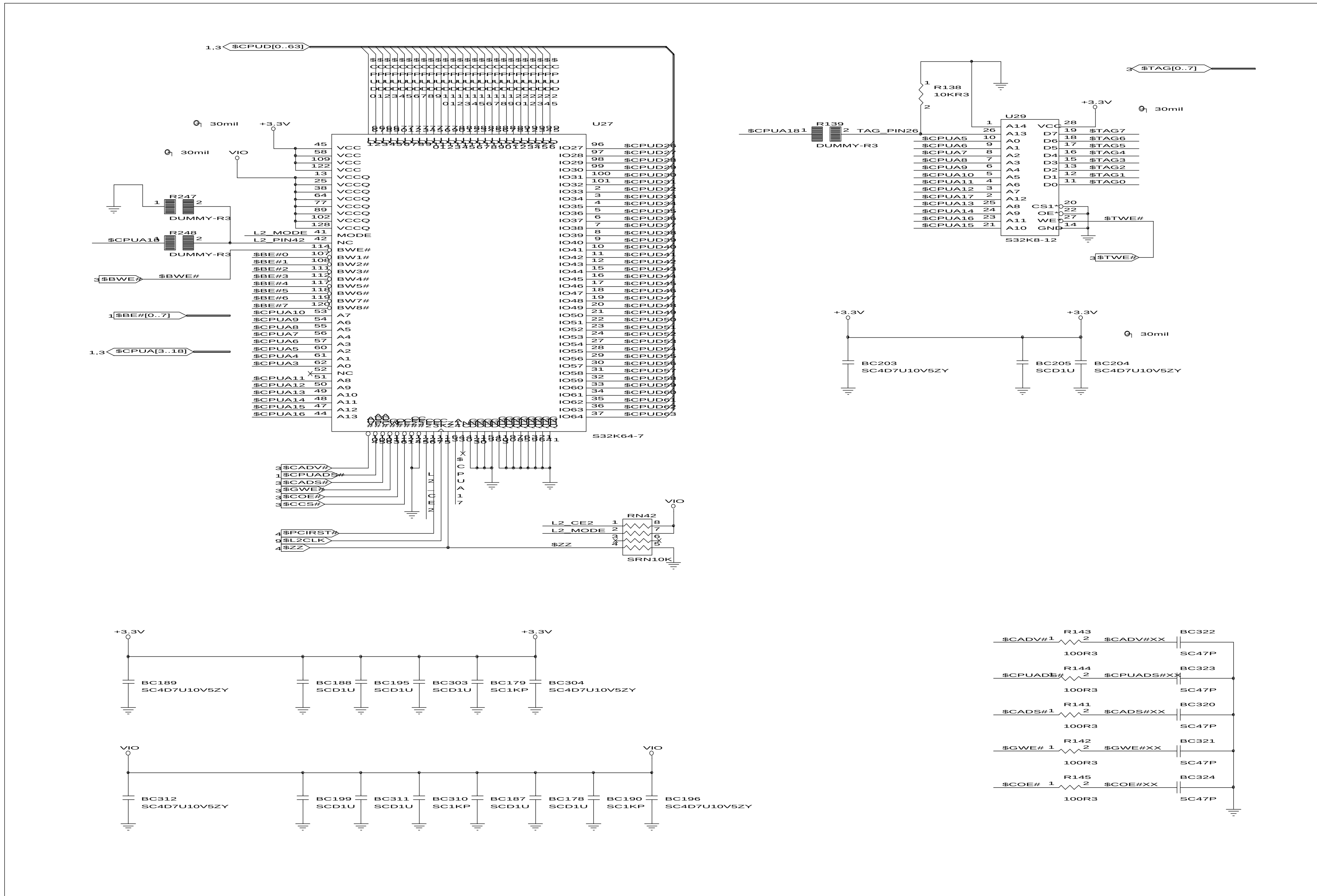
ACER INCORPORATED		
365		
Title: M1531 Bypass Capacitors		
Size: B	Document Number: 97160-SB, M1531-C	REV: V14
Date: February 3, 1998	Sheet 2 of 28	


PCI BUS
TO CPU
U26
M1531
Acer Inc.
365
Title
M1531
Size
C
Document Number
97160-58, M1531
REV
V13
Date: January 14, 1998 Sheet 3 of 28

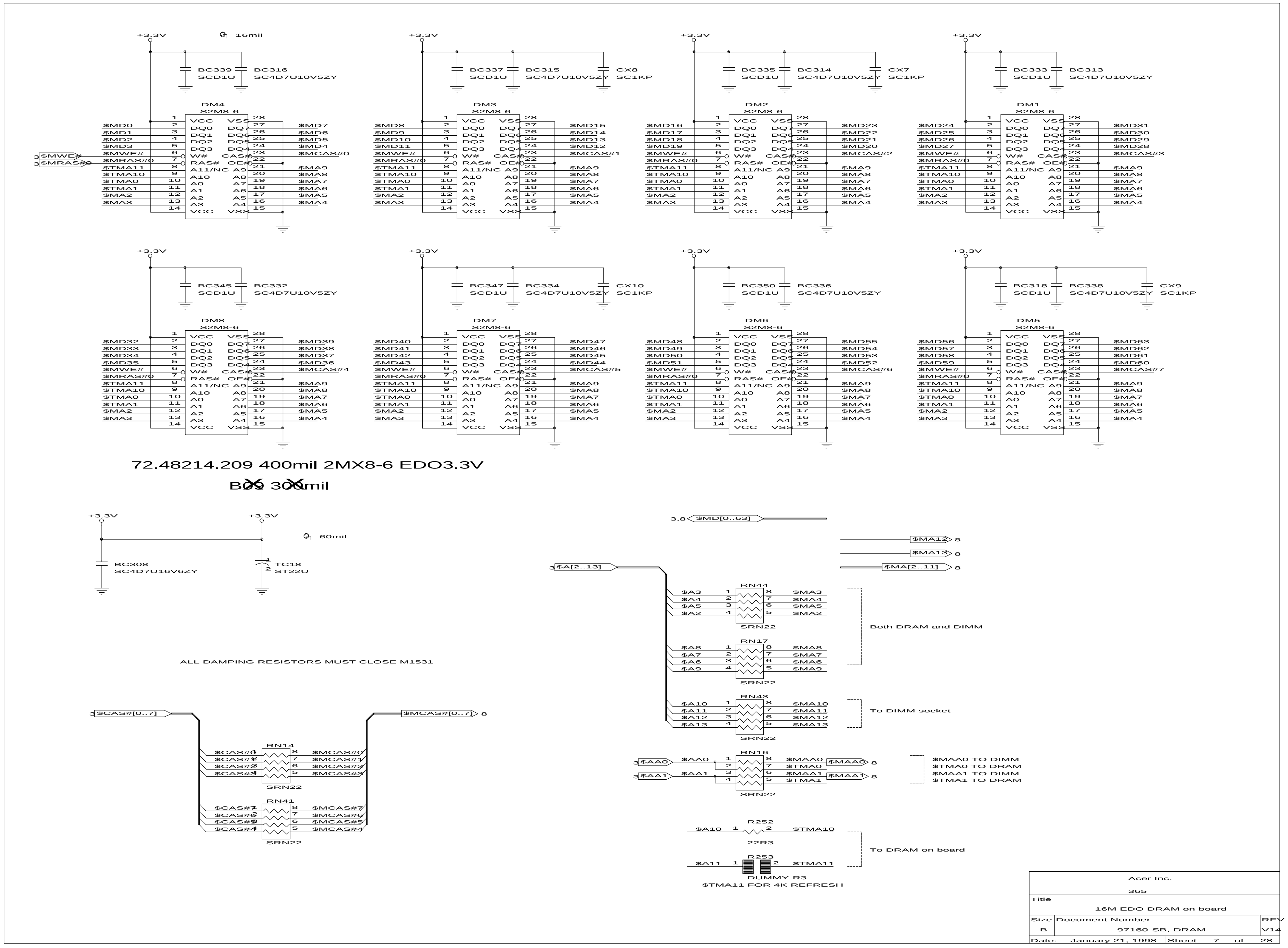

Acer Inc.
365
Title
M1533
Size B
Document Number 97160-SB. M1533
REV V1.1
Date: December 23, 1997
Sheet 4 of 28
U19
M1533

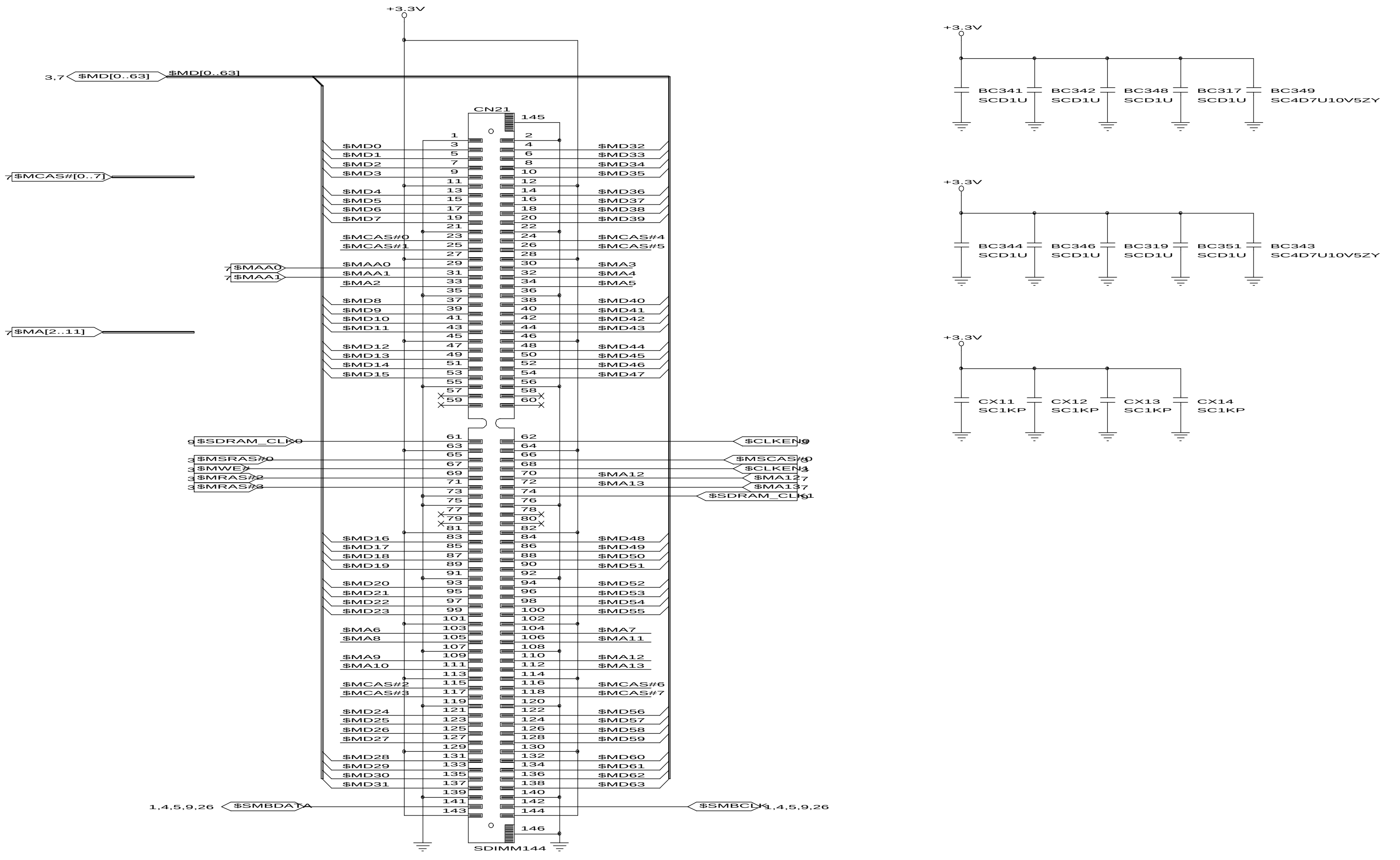


Acer Inc.		
365		
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Size B	Document Number 97160-1, M1533-C	REV V15
Date: March 1, 1998	Sheet 5 of 28	

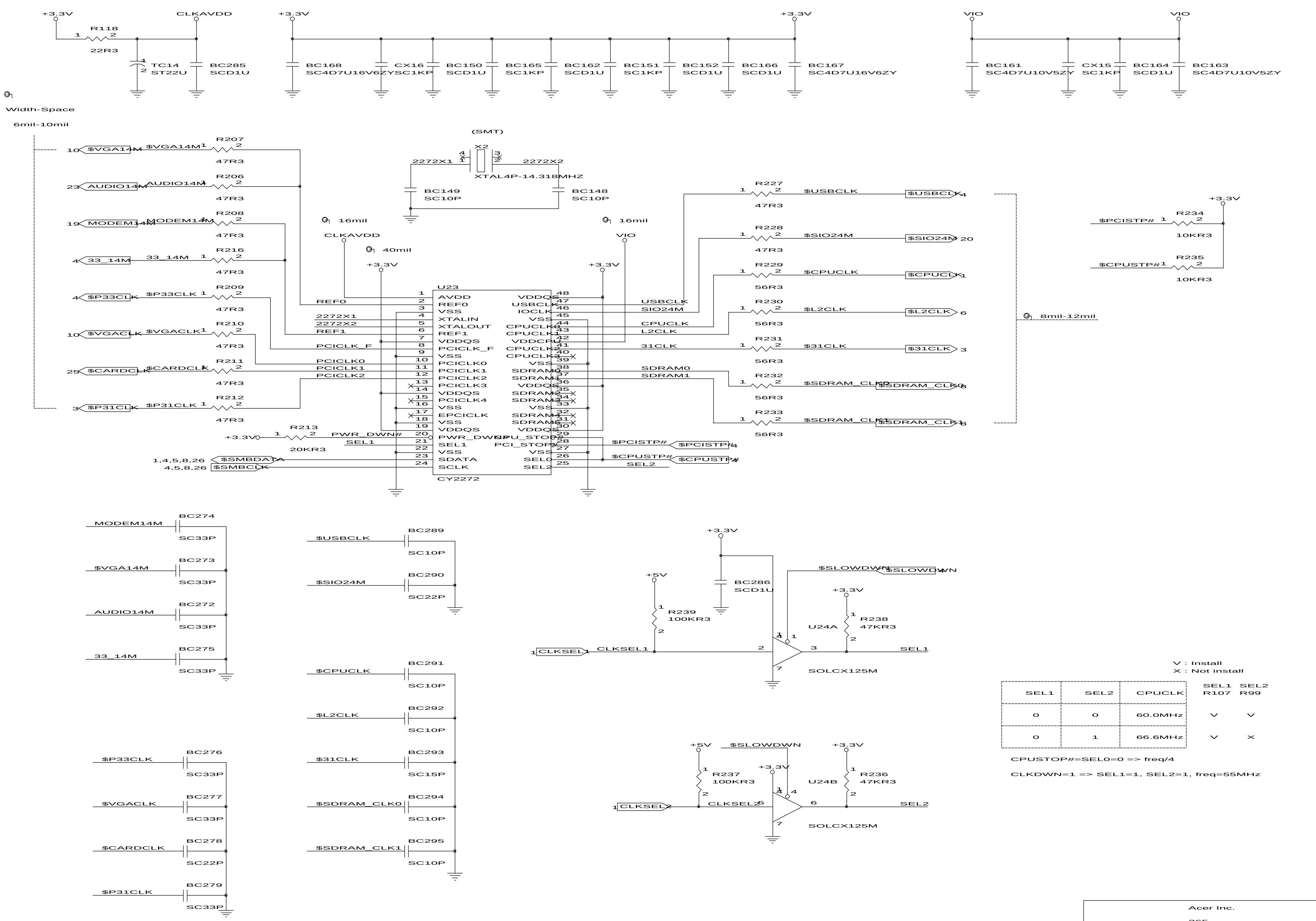


Acer Inc.		
365		
Title	CACHE RAM & TAG RAM	
Size	Document Number	REV
B	97160-SB, CACHE	V14
Date: January 21, 1998	Sheet 6 of 28	


DM4 S2M8-6
DM3 S2M8-6
DM2 S2M8-6
DM1 S2M8-6
DM8 S2M8-6
DM7 S2M8-6
DM6 S2M8-6
DM5 S2M8-6
72.48214.209 400mil 2MX8-6 EDO3.3V
ALL DAMPING RESISTORS MUST CLOSE M1531
Both DRAM and DIMM
To DIMM socket
$MAA0 TO DIMM
$TMA0 TO DRAM
$MAA1 TO DIMM
$TMA1 TO DRAM
To DRAM on board
$TMA11 FOR 4K REFRESH
Acer Inc.
365
Title
16M EDO DRAM on board
Size B
Document Number 97160-SB, DRAM
REV V14
Date: January 21, 1998 Sheet 7 of 28



Acer Inc.					
365					
Title	DIMM SOCKET				
Size	Document Number				REV
B	97160-SB, DIMM				V14
Date:	January 19, 1998	Sheet	8	of	28



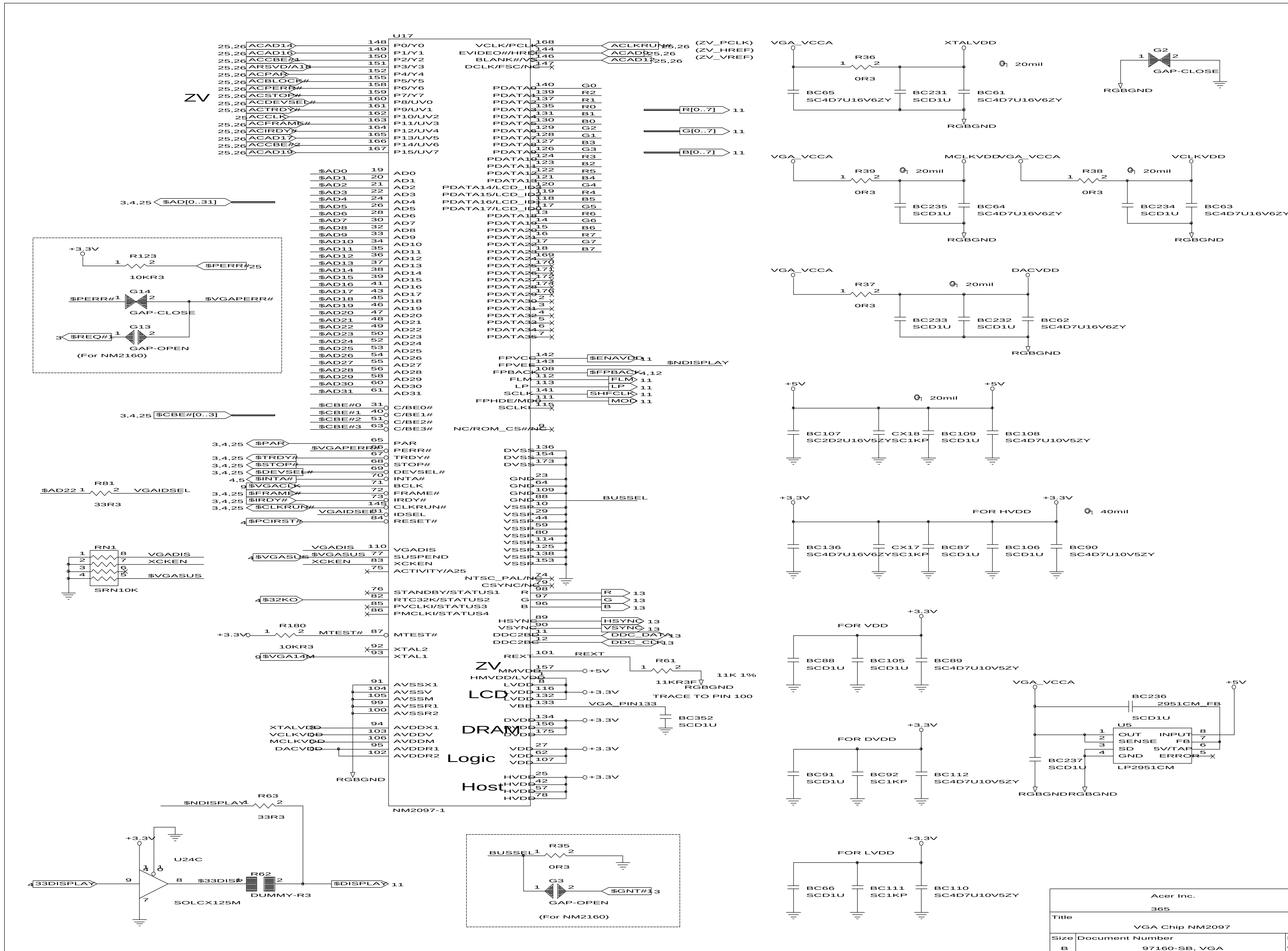
V : Install
X : Not install

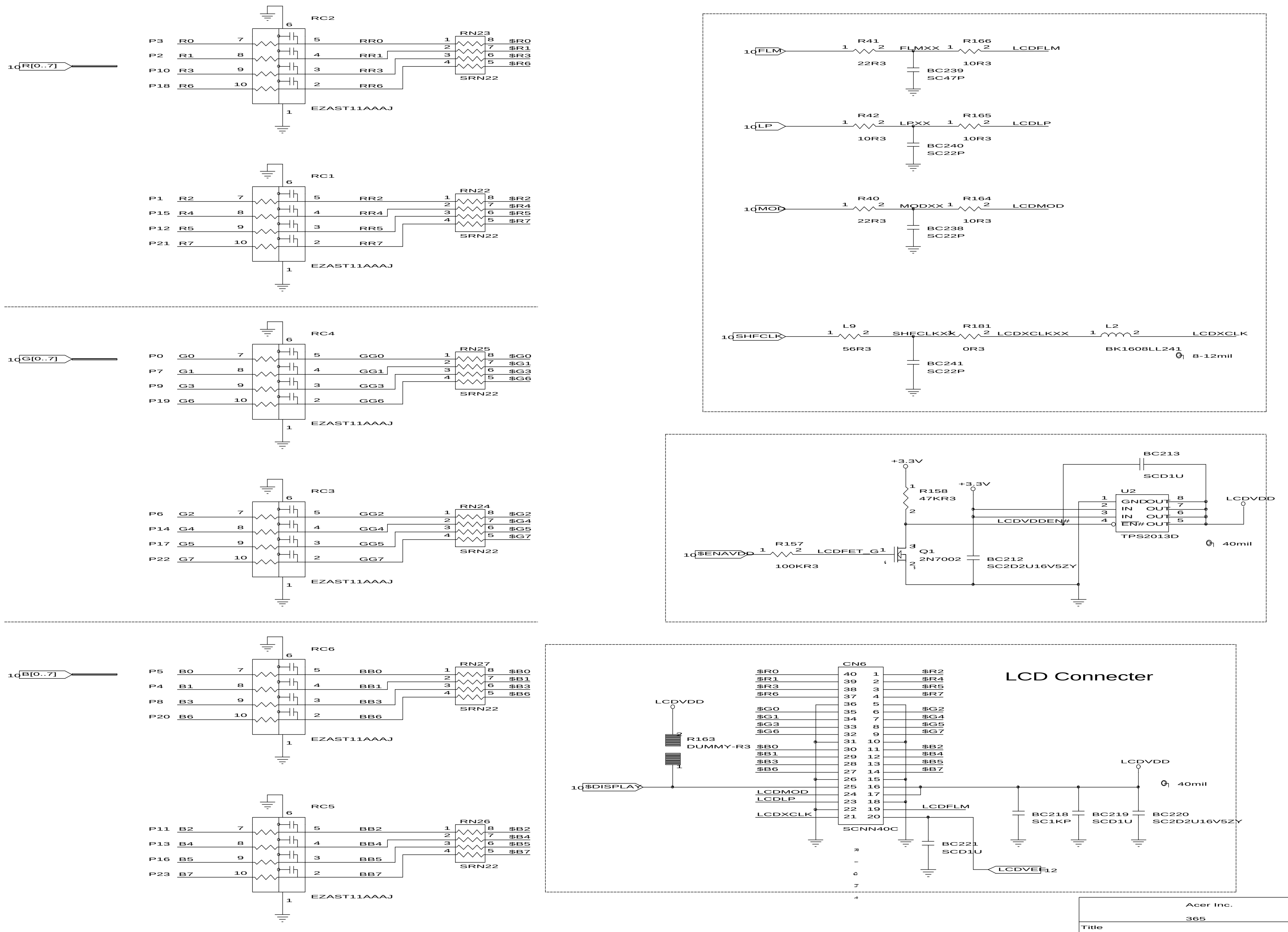
SEL1	SEL2	CPUCLK	SEL1 R107	SEL2 R99
0	0	60.0MHz	V	V
0	1	66.6MHz	V	X

CPUSTOP#=SEL0=0 => freq/4

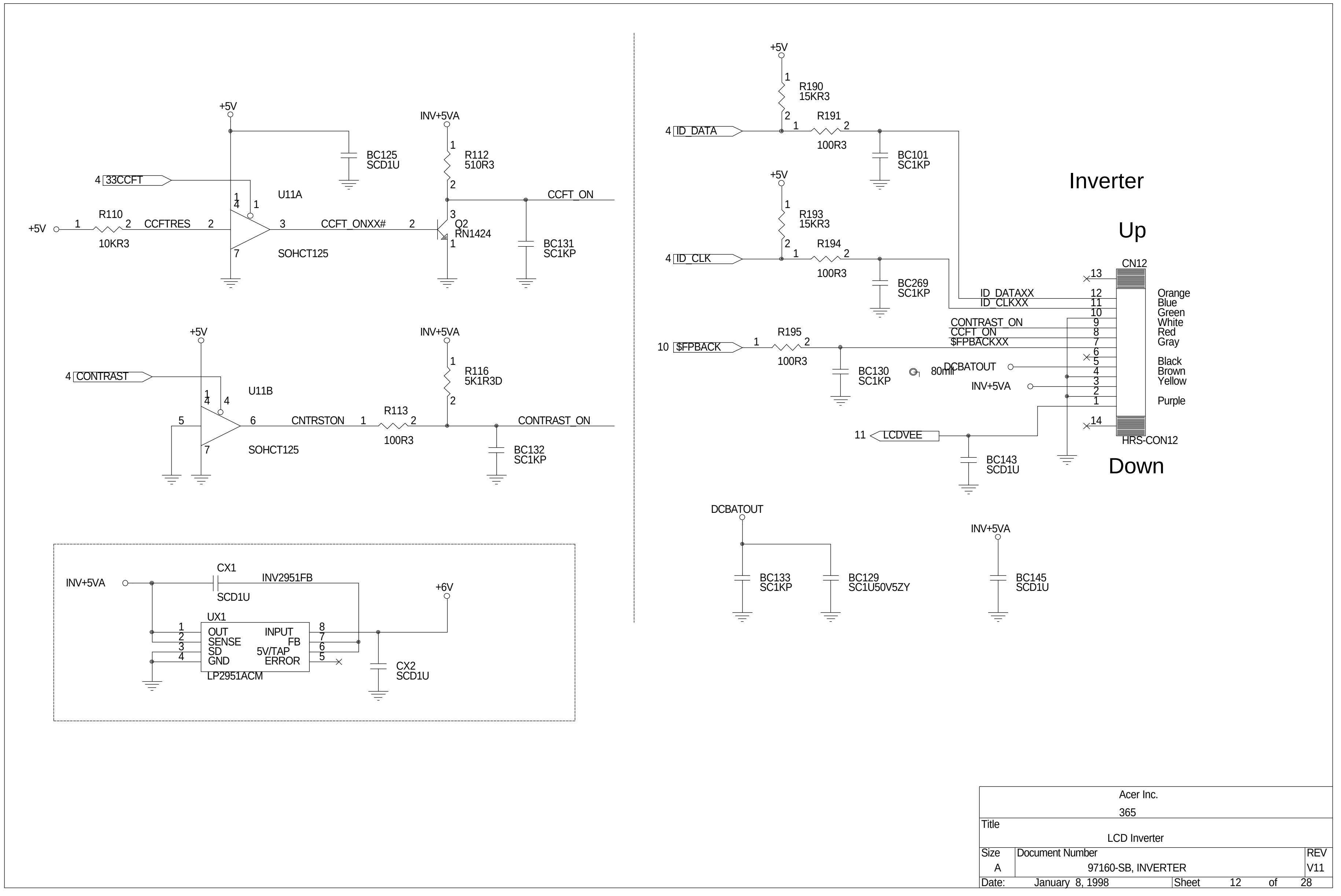
CLKDWN=1 => SEL1=1, SEL2=1, freq=55MHz

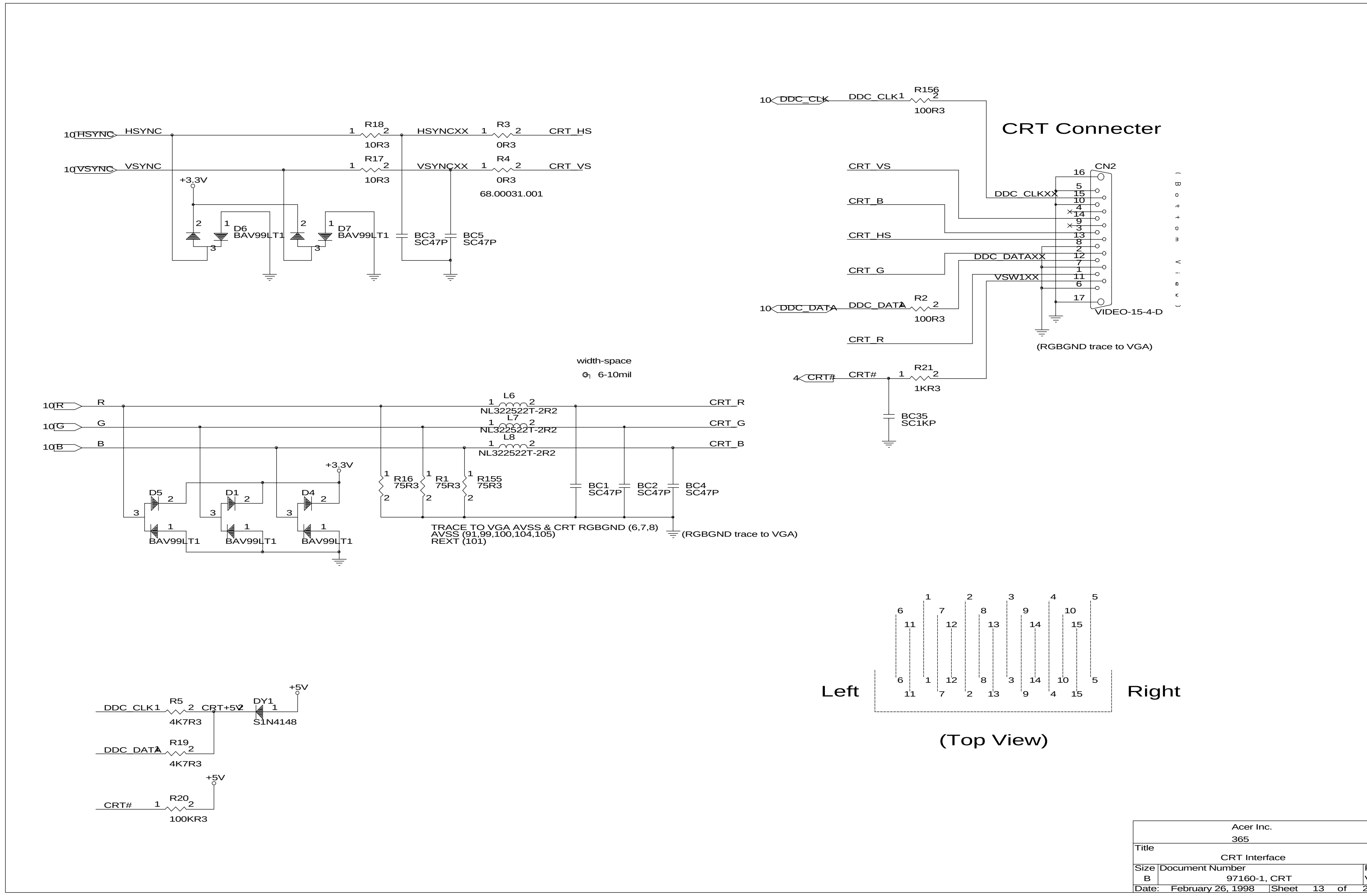
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Title: Clock Generator CY2272		
Size: B	Document Number: 97160-SB, CLOCK	REV: V14
Date: February 3, 1998	Sheet 9 of 28	

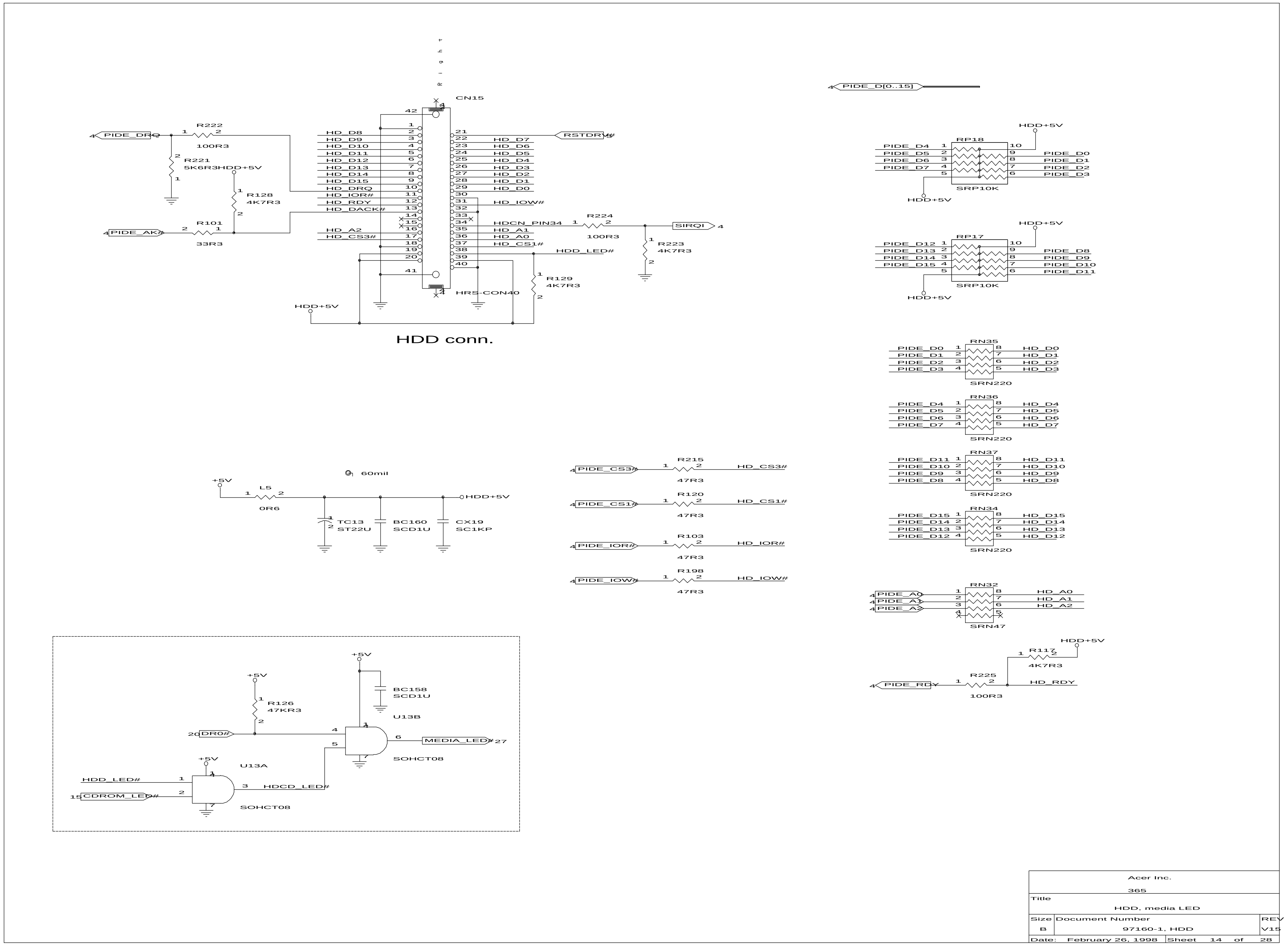

U17
NM2097-1
ZV
LCD
DRAM
Logic
Host
U5
LP2951CM
U24C
SOLCX125M
RN1
SRN10K
GAP-CLOSE
GAP-OPEN
(For NM2160)
FOR HVDD
FOR VDD
FOR DVDD
FOR LVDD
TRACE TO PIN 100
Acer Inc.
365
Title
VGA Chip NM2097
Size
B
Document Number
97160-SB, VGA
REV
V14
Date: February 3, 1998
Sheet 10 of 28

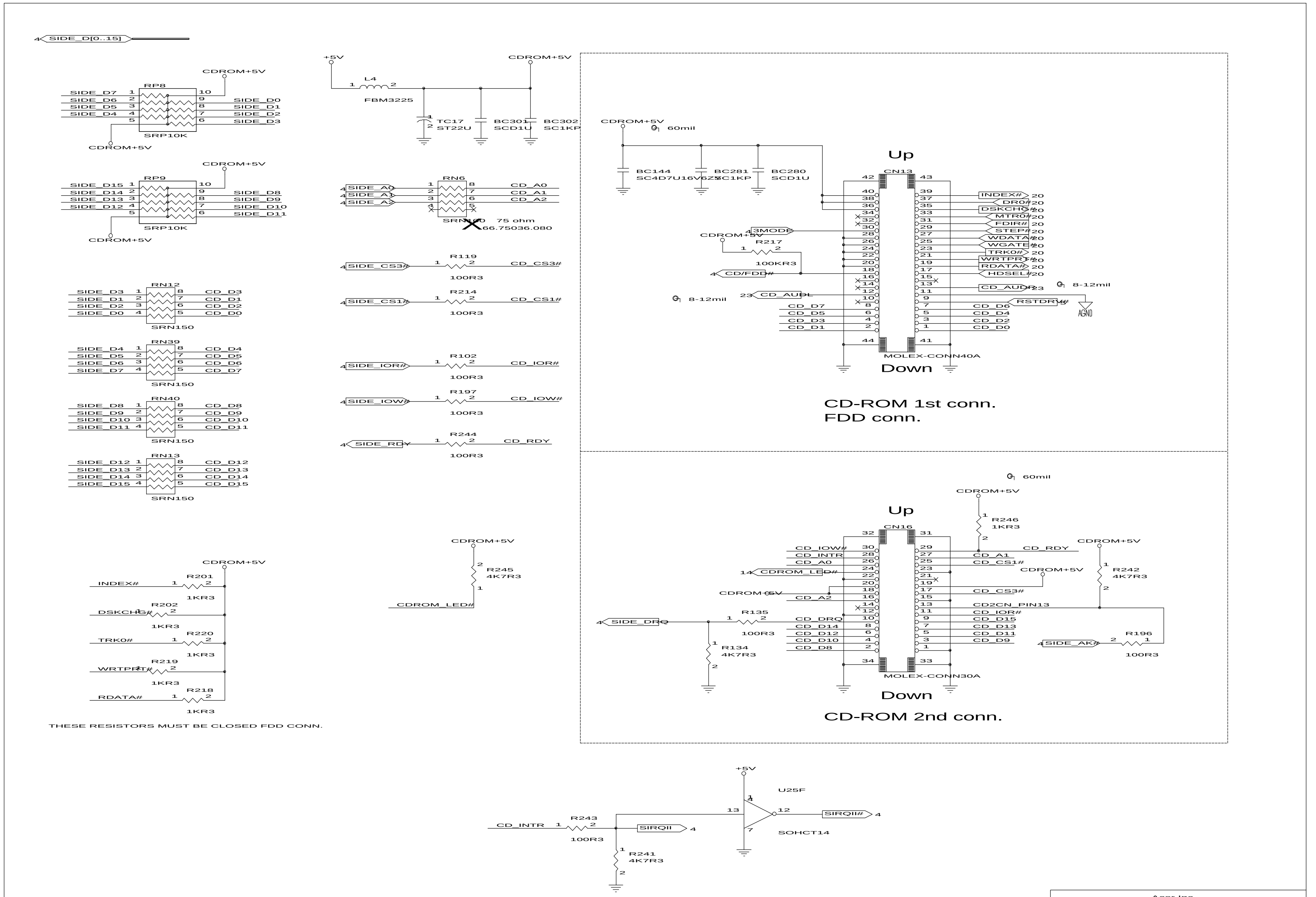


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Size: B	Document Number: 97160-SB, LCD	REV: V14
Date: January 21, 1998	Sheet 11 of 28	

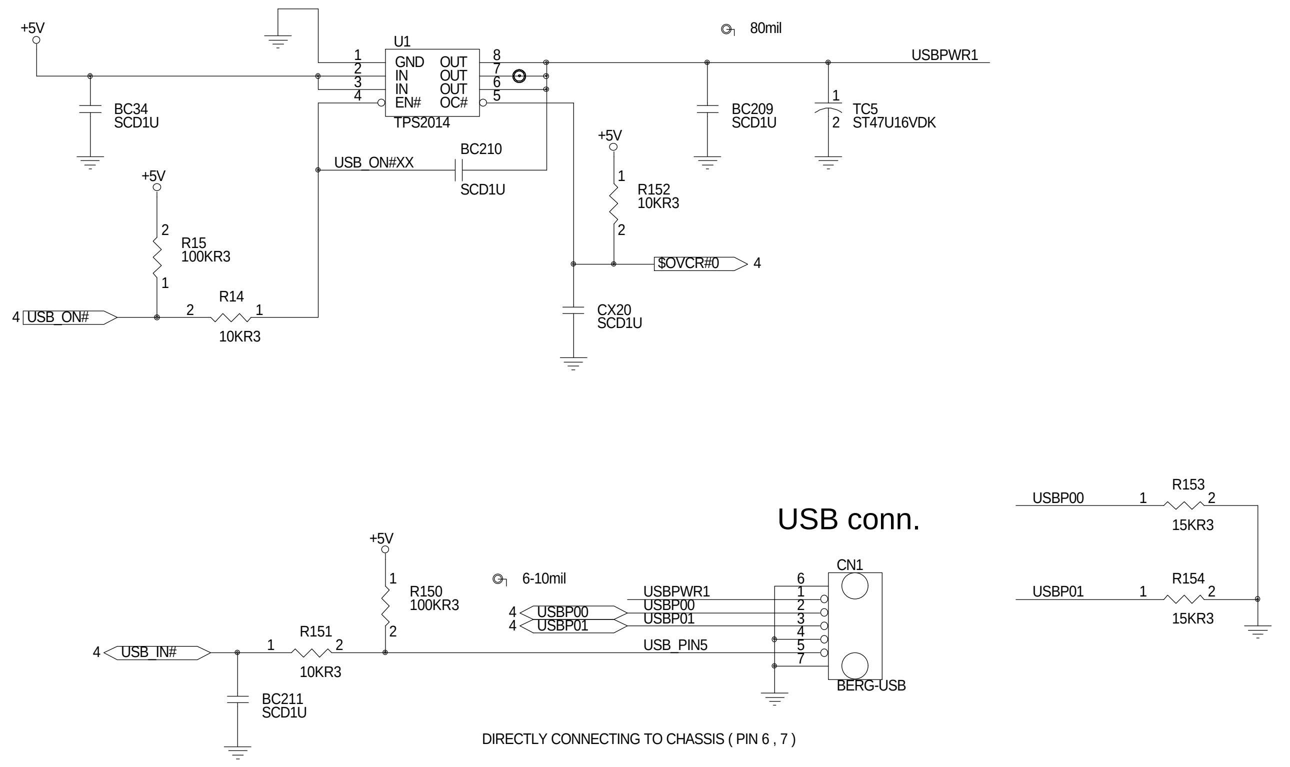

+5V
BC125
SCD1U
INV+5VA
R112
510R3
33CCFT
U11A
CCFT_ON
R110
10KR3
CCFTRES
CCFT_ONXX#
Q2
RN1424
BC131
SC1KP
SOHCT125
+5V
INV+5VA
CONTRAST
U11B
R116
5K1R3D
CNTRSTON
R113
100R3
CONTRAST_ON
BC132
SC1KP
SOHCT125
INV+5VA
CX1
SCD1U
INV2951FB
+6V
UX1
OUT
SENSE
SD
GND
INPUT
FB
5V/TAP
ERROR
LP2951ACM
CX2
SCD1U
+5V
R190
15KR3
R191
100R3
ID_DATA
BC101
SC1KP
Inverter
Up
R193
15KR3
R194
100R3
ID_CLK
BC269
SC1KP
CN12
ID_DATAXX
ID_CLKXX
CONTRAST_ON
CCFT_ON
$FPBACKXX
Orange
Blue
Green
White
Red
Gray
Black
Brown
Yellow
Purple
$FPBACK
R195
100R3
BC130
SC1KP
80mil
DCBATOUT
INV+5VA
LCDVEE
BC143
SCD1U
HRS-CON12
Down
DCBATOUT
BC133
SC1KP
BC129
SC1U50V5ZY
INV+5VA
BC145
SCD1U
Acer Inc.
365
Title
LCD Inverter
Size A
Document Number 97160-SB, INVERTER
REV V11
Date: January 8, 1998
Sheet 12 of 28


CRT Connecter
HSYNC
VSYNC
R18
10R3
R17
10R3
HSYNCXX
VSYNCXX
R3
0R3
R4
0R3
68.00031.001
CRT_HS
CRT_VS
+3.3V
D6
BAV99LT1
D7
BAV99LT1
BC3
SC47P
BC5
SC47P
DDC_CLK
R156
100R3
DDC_CLKXX
CN2
VIDEO-15-4-D
CRT_B
CRT_G
DDC_DATAXX
VSW1XX
DDC_DATA
R2
100R3
CRT_R
CRT#
R21
1KR3
BC35
SC1KP
(RGBGND trace to VGA)
width-space
6-10mil
R
G
B
L6
L7
L8
NL322522T-2R2
R16
75R3
R1
75R3
R155
75R3
BC1
SC47P
BC2
SC47P
BC4
SC47P
D5
D1
D4
BAV99LT1
TRACE TO VGA AVSS & CRT RGBGND (6,7,8)
AVSS (91,99,100,104,105)
REXT (101)
Left
Right
(Top View)
R5
4K7R3
CRT+5V
DY1
S1N4148
+5V
R19
4K7R3
R20
100KR3
Acer Inc.
365
Title
CRT Interface
Size
B
Document Number
97160-1, CRT
REV
V15
Date: February 26, 1998
Sheet 13 of 28

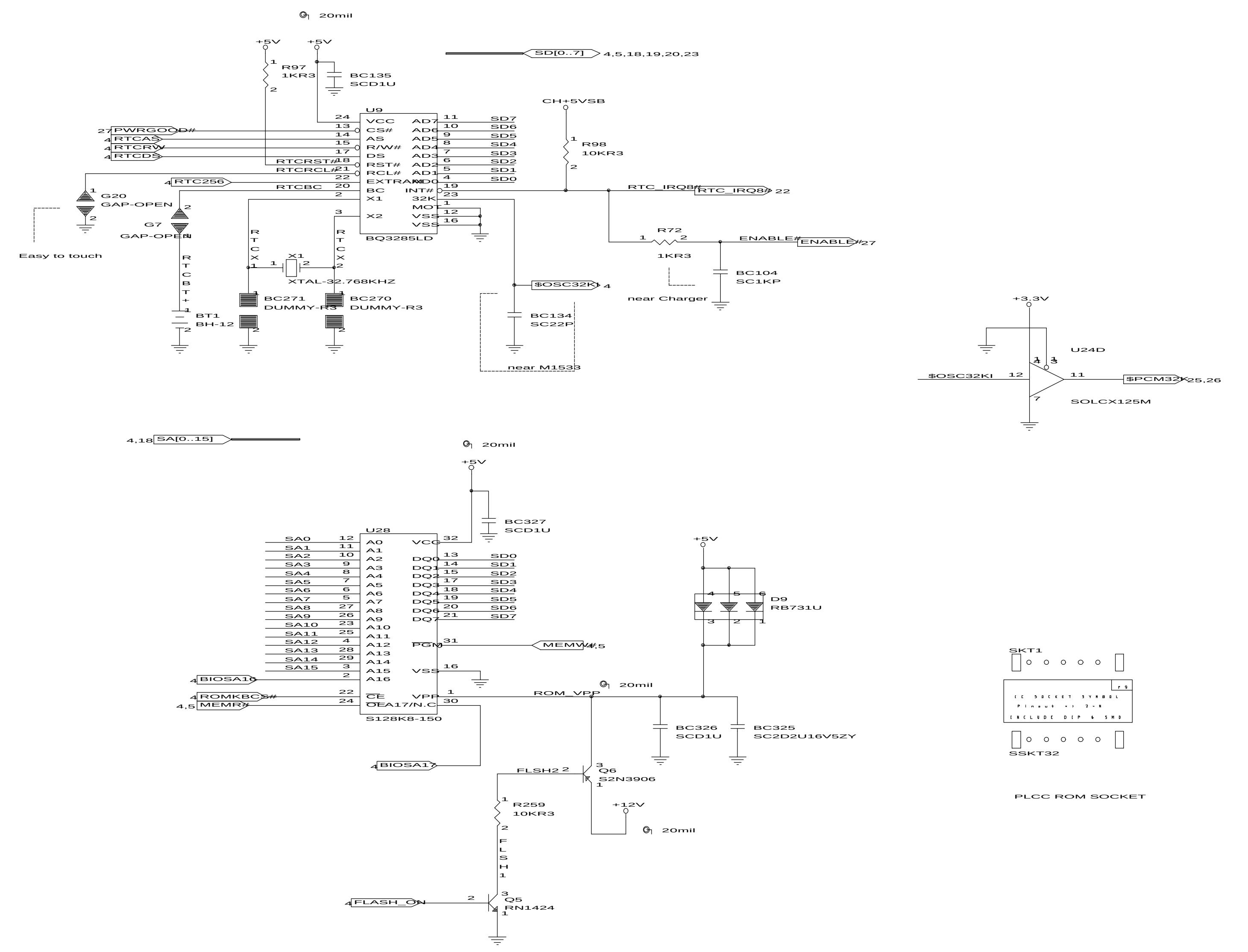

HDD conn.
CN15
HRS-CON40
PIDE_DRQ
R222
100R3
R221
5K6R3
HDD+5V
R128
4K7R3
PIDE_AK
R101
33R3
HD_D8
HD_D9
HD_D10
HD_D11
HD_D12
HD_D13
HD_D14
HD_D15
HD_DRQ
HD_IOR#
HD_RDY
HD_DACK#
HD_A2
HD_CS3#
HD_D7
HD_D6
HD_D5
HD_D4
HD_D3
HD_D2
HD_D1
HD_D0
HD_IOW#
HDCN_PIN34
HD_A1
HD_A0
HD_CS1#
HDD_LED#
RSTDRV#
R224
100R3
SIRQI
R223
4K7R3
R129
4K7R3
PIDE_D[0..15]
RP18
SRP10K
RP17
SRP10K
RN35
SRN220
RN36
SRN220
RN37
SRN220
RN34
SRN220
RN32
SRN47
PIDE_A0
PIDE_A1
PIDE_A2
R117
4K7R3
PIDE_RDY
R225
100R3
HD_RDY
+5V
L5
0R6
60mil
TC13
ST22U
BC160
SCD1U
CX19
SC1KP
PIDE_CS3#
R215
47R3
PIDE_CS1#
R120
47R3
PIDE_IOR#
R103
47R3
PIDE_IOW#
R198
47R3
R126
47KR3
DRO#
BC158
SCD1U
U13B
SOHCT08
MEDIA_LED#
U13A
SOHCT08
HDD_LED#
CDROM_LED#
HDCD_LED#
Acer Inc.
365
Title
HDD, media LED
Size B
Document Number 97160-1, HDD
REV V15
Date: February 26, 1998
Sheet 14 of 28



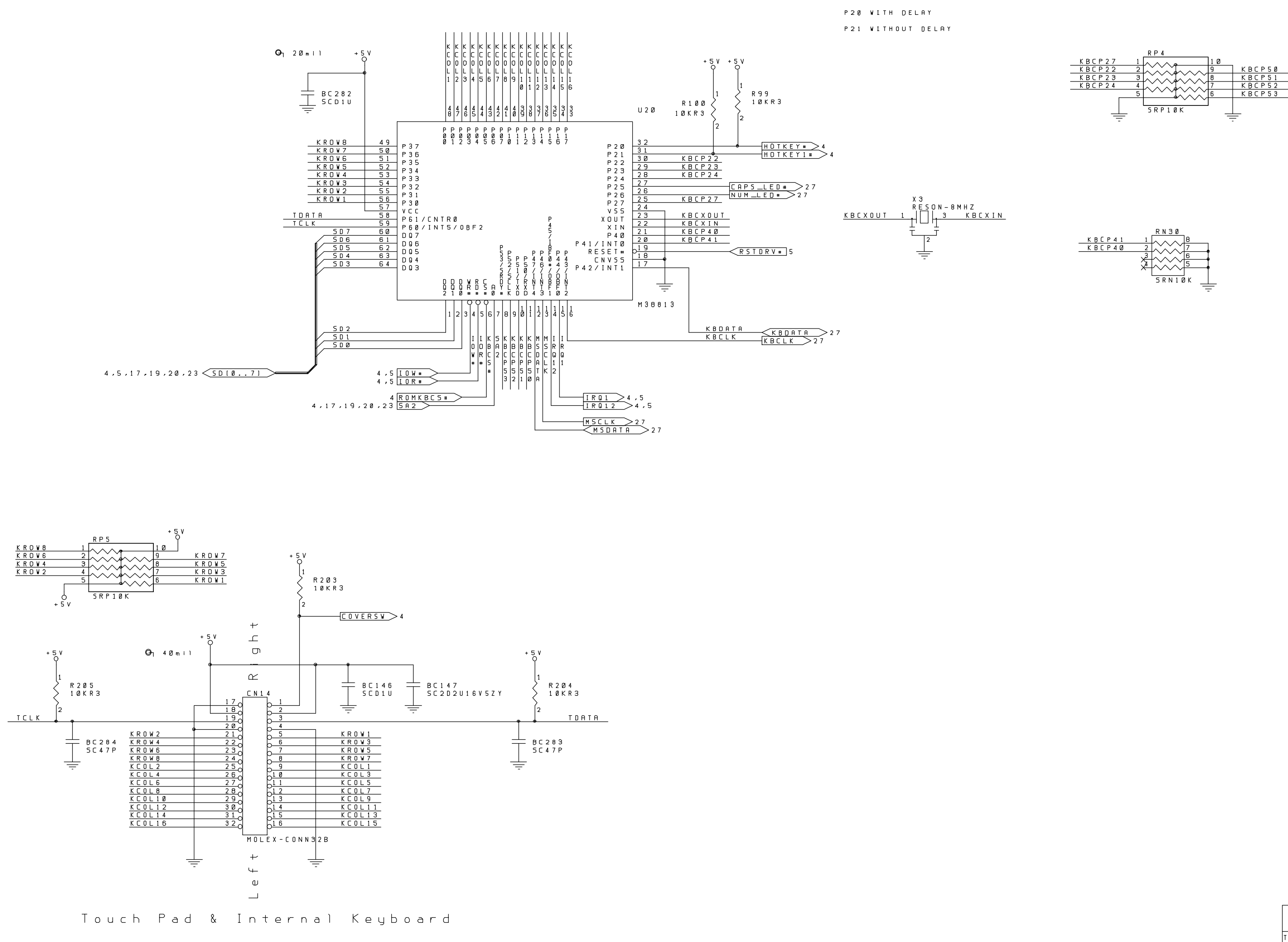
Acer Inc.				
365				
Title	CDROM, Internal FDD			
Size	Document Number			REV
B	97160-SB, CD-FDD			V14
Date: February 3, 1998	Sheet 15	of	28	



Acer Inc.		
365		
Title: USB		
Size: A	Document Number: 97160-SB, USB	REV: V14
Date: January 19, 1998	Sheet 16 of 28	

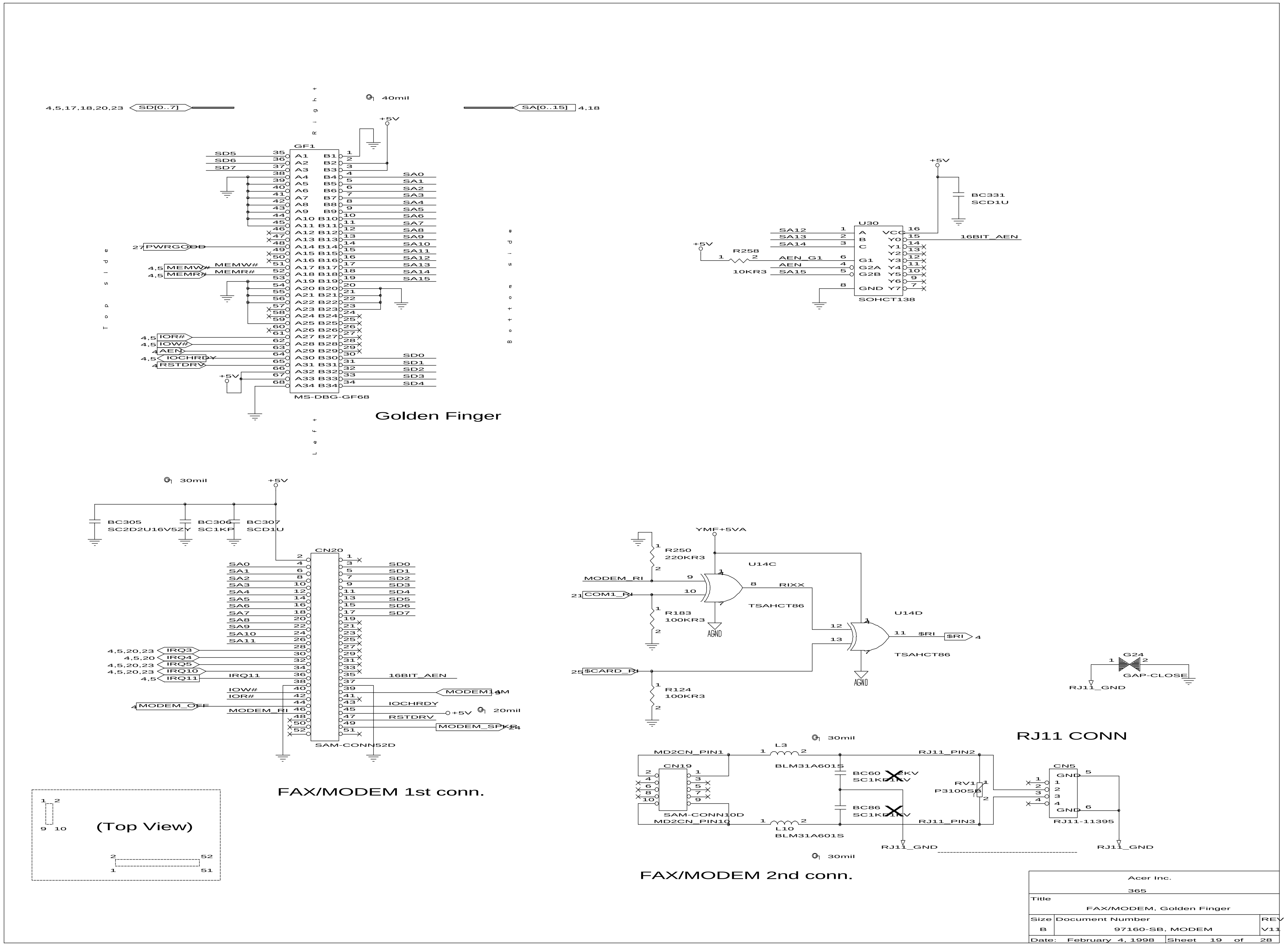


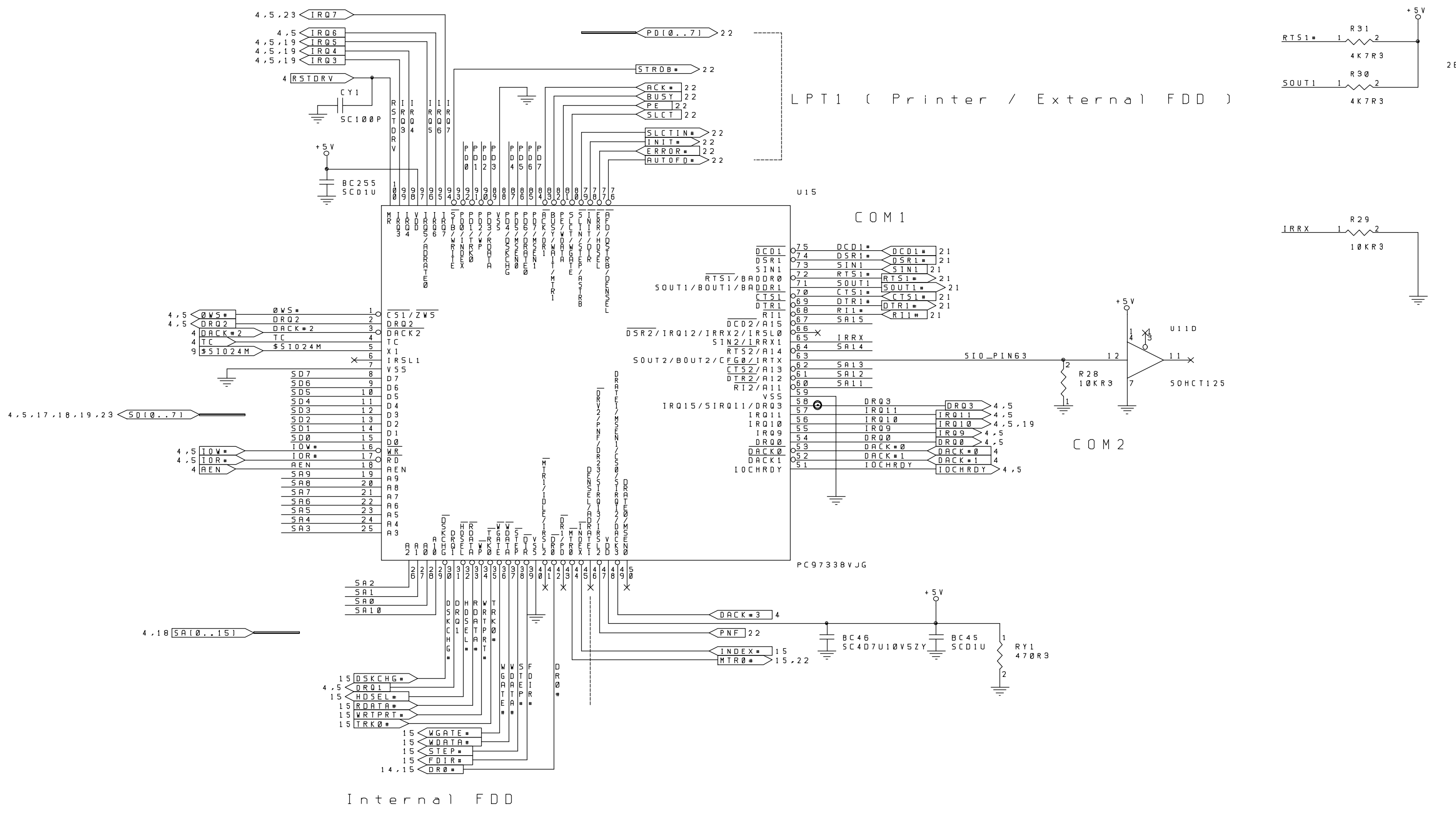
Acer Inc.		
365		
Title	RTC, ROM	
Size B	Document Number 97160-SA, RTC-ROM	REV V10
Date: December 2, 1997	Sheet 17 of 28	



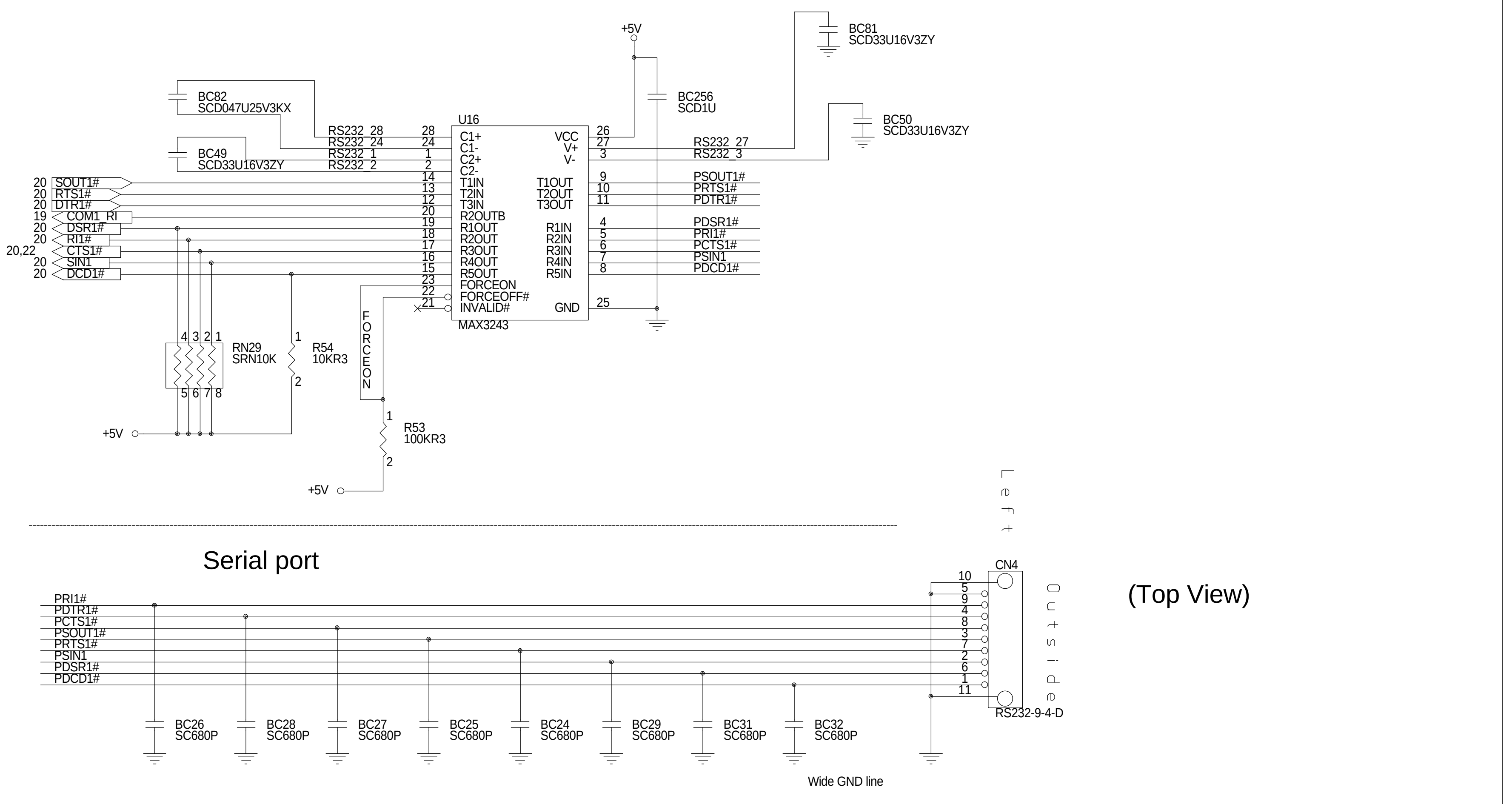
Touch Pad & Internal Keyboard

Acer Inc. 365		
Title: Keyboard Controller M38813		
Size: B	Document Number: 97160-SA, KBC	REV: V8
Date: November 12, 1997	Sheet 18 of 28	


Golden Finger
MS-DBG-GF68
FAX/MODEM 1st conn.
SAM-CONN52D
(Top View)
FAX/MODEM 2nd conn.
SAM-CONN10D
RJ11 CONN
RJ11-11395
SOHCT138
TSAHCT86
GAP-CLOSE
Acer Inc.
365
Title
FAX/MODEM, Golden Finger
Size Document Number REV
B 97160-SB, MODEM V11
Date: February 4, 1998 Sheet 19 of 28

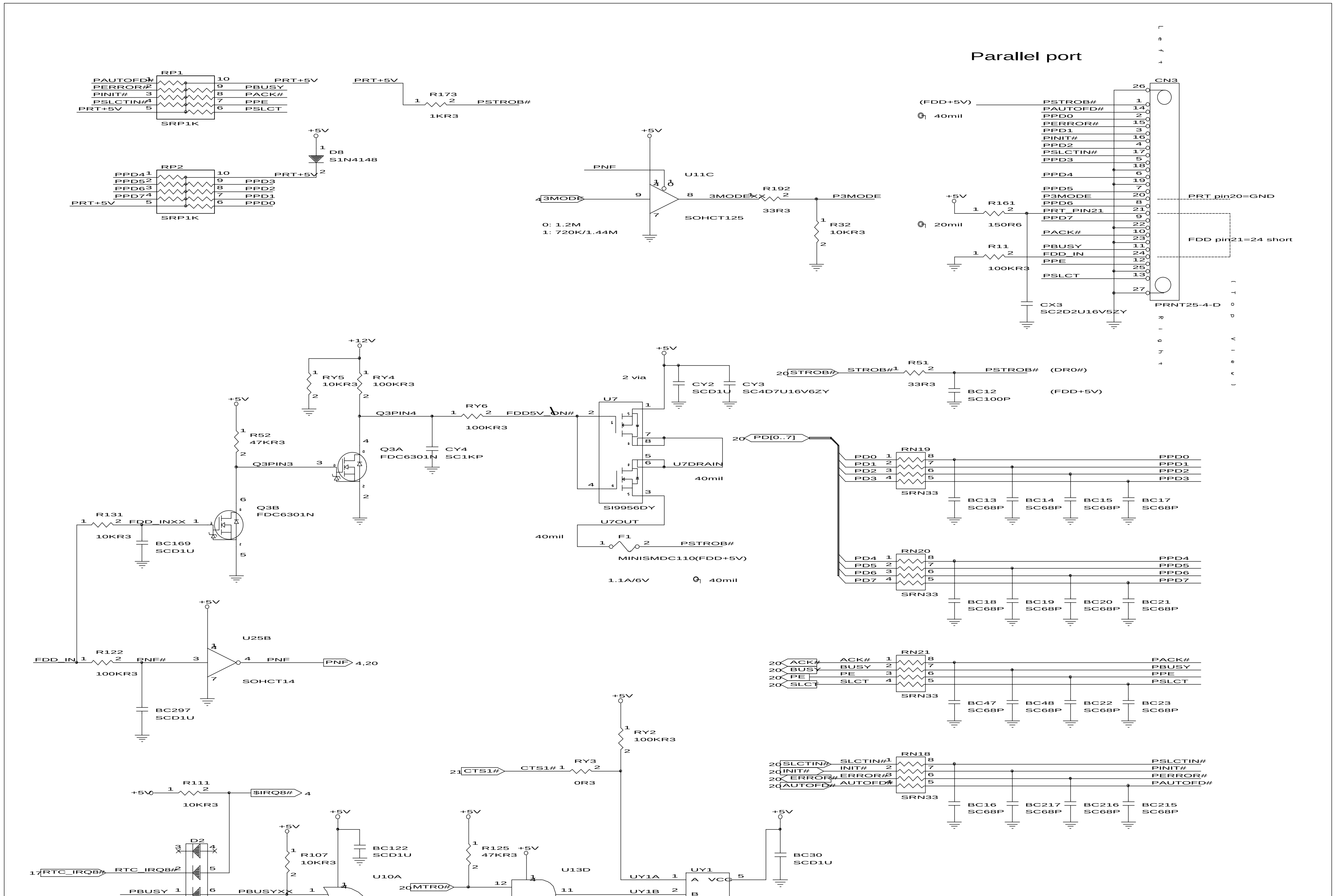


Acer Inc.		
365		
Title: Super I/O 97338		
Size: B	Document Number: 97160-1, SUPER-IO	REV: V15
Date: March 1, 1998	Sheet 20 of 28	

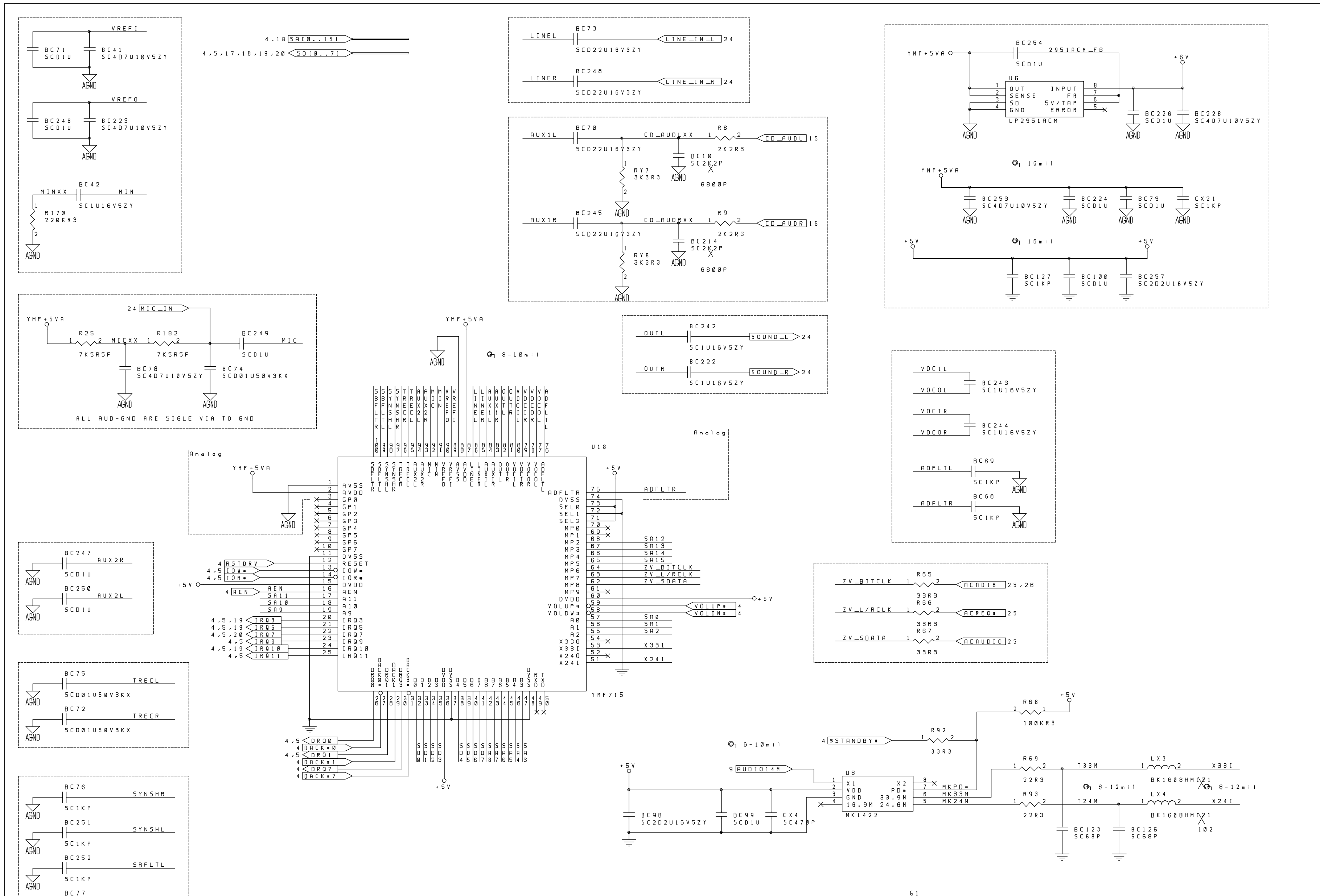


Acer Inc.		
365		
Title: Serial port		
Size: A	Document Number: 97160-1, SERIAL	REV: V15
Date: March 1, 1998	Sheet 21 of 28	

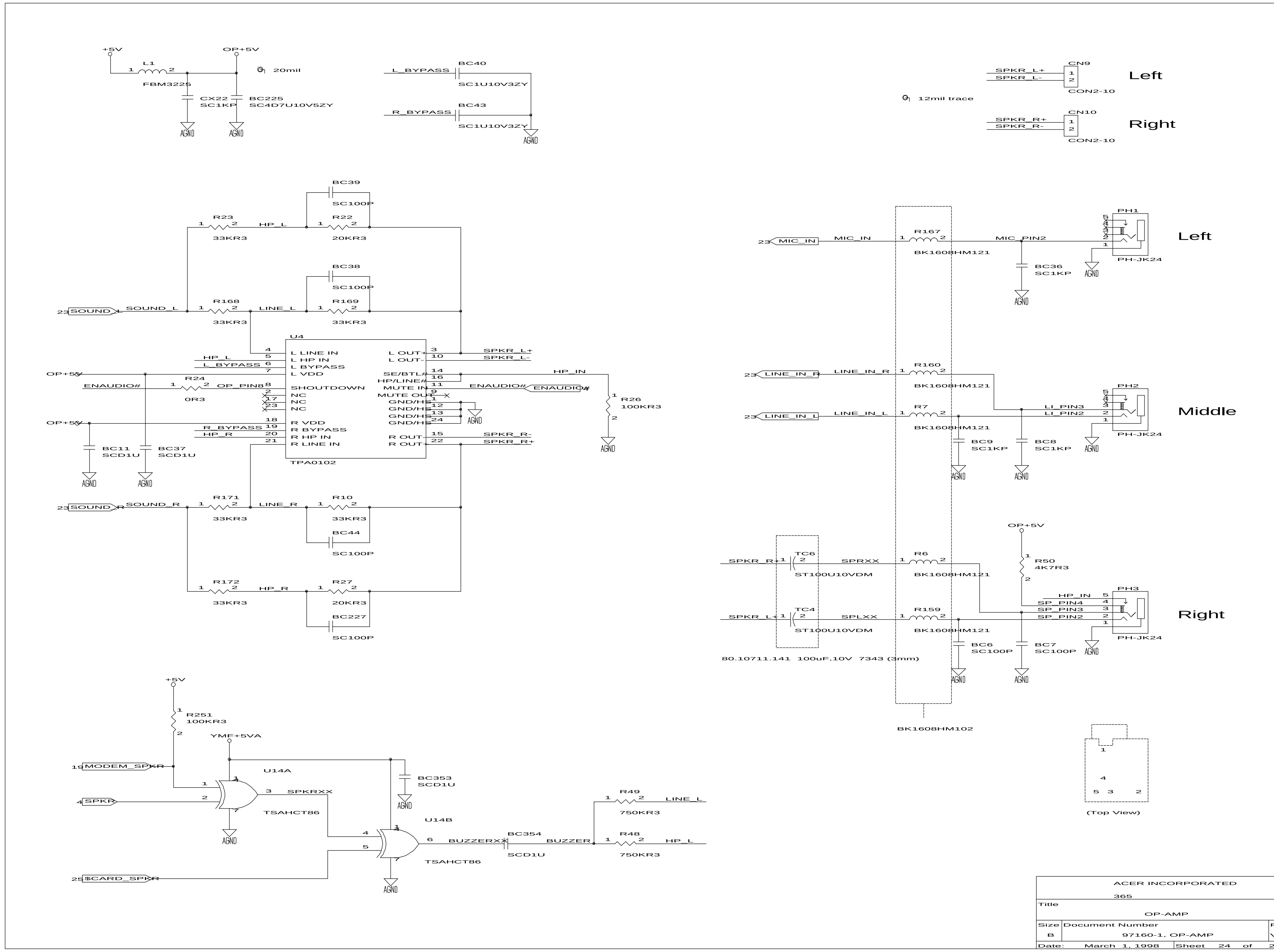
Parallel port



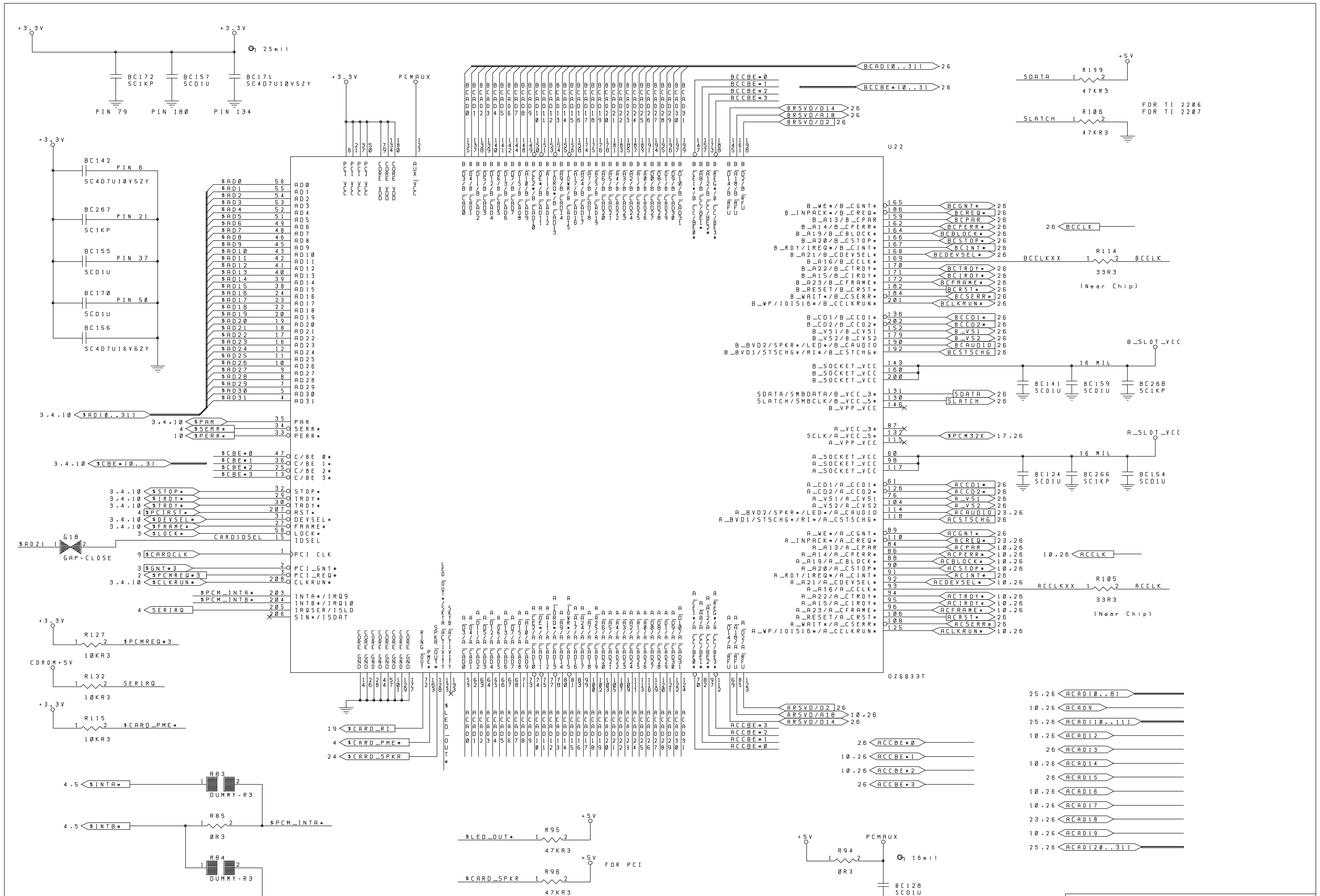
Acer Inc.			
365			
Title	Parallel port, External FDD		
Size	Document Number		REV
B	97160-1, PARALLEL		V15
Date:	March 4, 1998	Sheet 22 of 28	



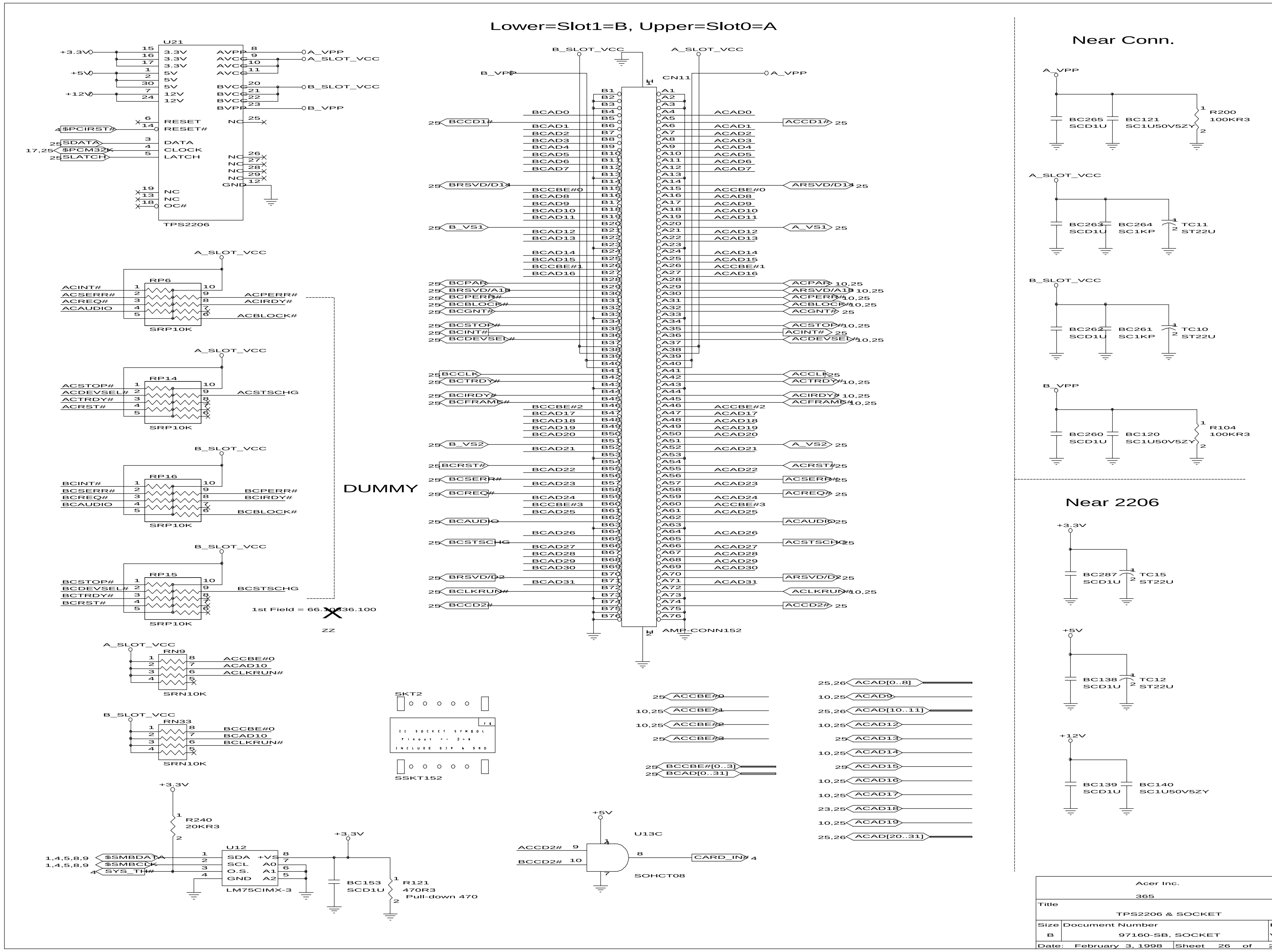
Acer Inc.		
365		
Title: Audio chip YMF715 OPL3-SA3		
Size: B	Document Number: 97160-1, AUDIO	REV: V15
Date: March 2, 1998	Sheet 23 of 28	



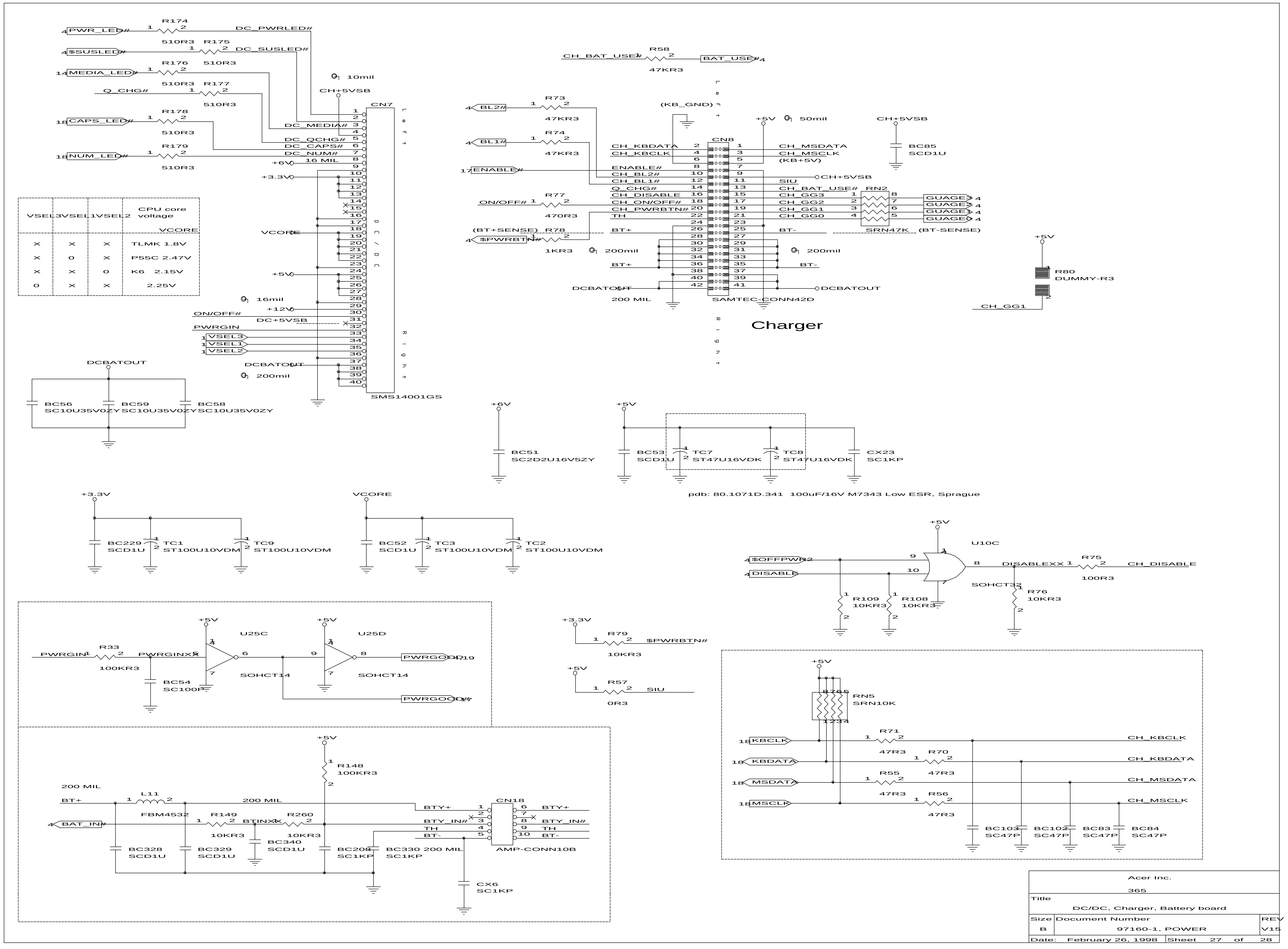
+5V
OP+5V
L1
FBM3225
CX22
SC1KP
BC225
SC4D7U10V5ZY
20mil
L_BYPASS
BC40
SC1U10V3ZY
R_BYPASS
BC43
SC1U10V3ZY
SPKR_L+
SPKR_L-
CN9
CON2-10
Left
12mil trace
SPKR_R+
SPKR_R-
CN10
CON2-10
Right
BC39
SC100P
R23
33KR3
HP_L
R22
20KR3
BC38
SC100P
SOUND
SOUND_L
R168
33KR3
LINE_L
R169
33KR3
U4
L LINE IN
L HP IN
L BYPASS
L VDD
SHOUTDOWN
NC
R VDD
R BYPASS
R HP IN
R LINE IN
L OUT+
L OUT-
SE/BTL#
HP/LINE#
MUTE IN
MUTE OUT
GND/HS
R OUT-
R OUT+
TPA0102
SPKR_L+
SPKR_L-
HP_IN
ENAUDIO#
R26
100KR3
SPKR_R-
SPKR_R+
R24
0R3
OP_PIN8
BC11
SCD1U
BC37
SCD1U
AGND
SOUND_R
R171
33KR3
LINE_R
R10
33KR3
BC44
SC100P
R172
33KR3
HP_R
R27
20KR3
BC227
SC100P
MIC_IN
R167
BK1608HM121
MIC_PIN2
BC36
SC1KP
PH1
PH-JK24
Left
LINE_IN_R
R160
BK1608HM121
LINE_IN_L
R7
BK1608HM121
LI_PIN3
LI_PIN2
BC9
SC1KP
BC8
SC1KP
PH2
PH-JK24
Middle
OP+5V
R50
4K7R3
SPKR_R+
TC6
ST100U10VDM
SPRXX
R6
BK1608HM121
SPKR_L+
TC4
ST100U10VDM
SPLXX
R159
BK1608HM121
HP_IN
SP_PIN4
SP_PIN3
SP_PIN2
PH3
PH-JK24
Right
BC6
SC100P
BC7
SC100P
80.10711.141 100uF,10V 7343 (3mm)
BK1608HM102
(Top View)
+5V
R251
100KR3
YMF+5VA
MODEM_SPKR
U14A
SPKRXX
TSAHCT86
SPKR
BC353
SCD1U
U14B
TSAHCT86
CARD_SPKR
BUZZERXX
BC354
SCD1U
BUZZER
R49
750KR3
LINE_L
R48
750KR3
HP_L
ACER INCORPORATED
365
Title
OP-AMP
Size B
Document Number
97160-1, OP-AMP
REV V15
Date: March 1, 1998
Sheet 24 of 28

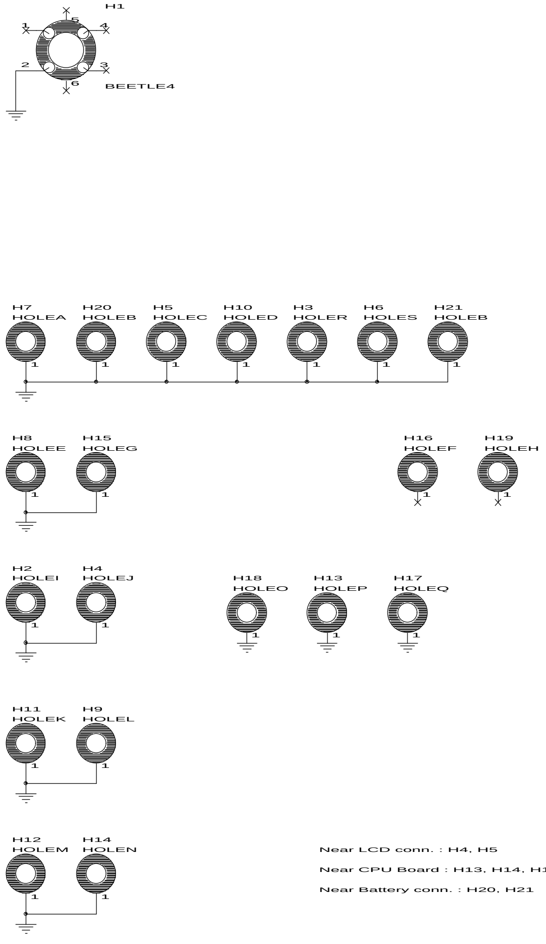


Acer Inc. 365		
Title: PCMCIA Controller OZ6833		
Size: B	Document Number: 97160-SB, PCMCIA	REV: V14
Date: February 3, 1998	Sheet 25 of 28	



Lower=Slot1=B, Upper=Slot0=A
Near Conn.
Near 2206
U21
TPS2206
CN11
AMP-CONN152
DUMMY
1st Field = 66.100/36.100
ZZ
SKT2
SSKT152
U12
LM75CIMX-3
U13C
SOHCT08
CARD_IN#
RP6
RP14
RP16
RP15
SRP10K
RN9
RN33
SRN10K
R240
20KR3
R121
470R3
Pull-down 470
BC153
SCD1U
R200
100KR3
R104
100KR3
Acer Inc.
365
Title
TPS2206 & SOCKET
Size
Document Number
REV
B
97160-SB, SOCKET
V14
Date: February 3, 1998
Sheet 26 of 28


Charger
CN7
SMS14001GS
CN8
SAMTEC-CONN42D
CN18
AMP-CONN10B
VSEL3 VSEL1 VSEL2 CPU core voltage VCORE
TLMK 1.8V
P55C 2.47V
K6 2.15V
2.25V
pdb: 80.1071D.341 100uF/16V M7343 Low ESR, Sprague
U10C
U25C
U25D
SOHCT14
SOHCT32
RN5 SRN10K
RN2 SRN47K
Acer Inc.
365
Title
DC/DC, Charger, Battery board
Size B
Document Number 97160-1, POWER
REV V15
Date: February 26, 1998
Sheet 27 of 28



Near LCD conn. : H4, H5

Near CPU Board : H13, H14, H17, H18

Near Battery conn. : H20, H21

Acer Inc. 365				
Title	SKEW HOLEs			
Size B	Document Number 97160-SB, HOLE			REV V14
Date: January 22, 1998	Sheet 28	of	28	

Appendix H

Troubleshooting to Board Repairing

This paragraph will usually be inserted into the Service Guide in the following weeks. Please check the http://ipg.intranet.acer.com.tw (Customer Services on the website) to find out when this information is available.